**Takneek Post Conduction**

**Report**

**Presented by**

**Takneek Overall Coordinators**

**Anurag Dwivedi (Overall Coordinator)**

**Mohd. Asim Khan (Overall Coordinator)**

**Shubham Gupta (Overall Coordinator)**

**Introduction**

Takneek, the intra-IITK science and technological festival was held from 29th August to 1st September.  
  
This year, Takneek manifested the spirit of Snt Council in numerous ways with increased focus on innovation and creativity. The problem statements were structured in a way to involve the newbies and the seniors alike to complete the tasks. New events were introduced under the “**Celebrate Science”** campaign with **Science Conference** receiving praise from the faculties. Efforts were laid out to reduce the number of events to 50 compared to the previous year.   
  
The Pool structure for the General Championship 2013-14:

1)  Rajputs- Hall 2, GH1, Hall 4  
2) Mauryans- Hall 3, Hall 7  
3) Mughals- Hall 5, GH-Tower, GH2, Hall 11  
4) Marathas- Hall 10, Hall 8

**Hall 1 and Hall 9:** Parent Halls

**Organizing Team**

The core team consisted of:

1. Rudra Pratap Suman (General Secretary, Science and Technology Council)

2. Anurag Dwivedi (Overall Coordinator)

3. Mohd. Asim Khan (Overall Coordinator)

4. Shubham Gupta (Overall Coordinator)

**Point Structure**

For all the competition held in Takneek’13 ( except for ‘The SnT Code’ ), the points were awarded finally to the pool. Every competition has got maximum points, and the points were awarded as follows:

**1st** Place: 100% of the maximum points

**2nd** Place: 60% of the maximum points

**3rd** Place: 30% of the maximum points

**4th** Place: 10% of the maximum points

For ‘The SnT Code’, the point structure was 100%, 50%, 30% and 20% for first, second, third and fourth position respectively.

**Various Categories and Point Structure**

**S.No Category Total Points**

1. Aeromodelling 100
2. Astronomy 90
3. Business 65
4. Electronics 100
5. Programming 80
6. Robotics 110
7. HAM 60
8. Rubik’s Cube 70
9. BRaIN 40
10. DesCon 30
11. E-Cell 50
12. GE3 15
13. Science 185
14. General Events 310

Total Points: 1305

**Competitions and Point System**

**S.No Category Competition Event Type Points**

1. Aeromodelling Cruise Control Pool, open to all 35

2. Aeromodelling Hoverrugby Pool, open to all 50

3. Aeromodelling Aqua-Drive Team, freshers 15

4. Astronomy Heavens Above Team, open to all 30

5. Astronomy Sundial Making Competition Pool, open to all 20

6. Astronomy Astrophysics Problems Pool, open to all 15

7. Astronomy Astrophotography Pool, open to all 25

8. Business Stocksim Pool, open to all 25

9. Business Case Study Presentation Pool, open to all 20

10. Business AOE Stragedy Game Pool, open to all 20

11. Electronics Electromania Team, freshers 30

12. Electronics Embedded Team, open to all 40

13. Electronics FPGA Team, open to all 30

14. Programming Kodefest Pool, open to all 30

15. Programming Black Box Team, freshers 25

16. Programming Web Dev Team, open to all 25

17. Robotics Robo Y13 Team, freshers 30

18. Robotics Relay Race Pool, open to all 30

19. Robotics Wild Soccer Pool, open to all 50

20. HAM Fox Hunt Pool, open to all 25

21. HAM Morse Code Team Challenge Pool, open to all 15

22. HAM Antenna Design Challenge Team, open to all 20

23. Rubik’s Cube Speed Solve 3X3X3 Freshers Team, freshers 20

24. Rubik’s Cube Speed Solve 3X3X3 Seniors Team, seniors 15

25. Rubik’s Cube Team Blindfold Team, open to all 15

26. Rubik’s Cube Medley Relay Team, open to all 20

27. DesCon Bridge Design Challenge Team, open to all 30

28. BRaIN SuperSapiens Team, open to all 15

29. BRaIN Crime Run Pool, freshers 25

30. Science SnT Blogging Pool, open to all 20

31. Science Science Quiz Team, open to all 20

32. Science Science Fiction Team, open to all 20

33. Science Giant Particle Chess Pool, open to all 20

34. Science Integration BEE Team, open to all 15

35. Science Scientoon Team, open to all 15

36. Science Science Poetry Team, open to all 15

37. Science What If Team, open to all 10

38. Science Science Conference Pool, open to all 30

39. Science Nutcracker Team, open to all 20

40. GE3 Green Poster Competition Pool, open to all 15

41. E-Cell Wacky Marketing Pool, open to all 30

42 E-Cell TechnoPro Team, open to all 20

43. General Events SnT Quiz Pool, open to all 50

44. General Events Jugaad Pool, open to all 50

45. General Events Rube Goldberg Pool, open to all 40

46. General Events Gearloose Team, open to all 30

47. General Events Crypto Pool, open to all 20

48. General Events Eureka Team, open to all 20

49. General Events Android AppDev Pool, open to all 30

50. General Events The SnT Code Pool, open to all 70

**Takneek** saw immense participation from all pools. This year, Several new events were introduced:

1. **Science Conference** was introduced for the first time to popularize the ongoing developments in the fields of science and to provide a constructive platform to visualize the growth of science in the near future. The event was well received by the professors who iterated the need of such discussions on student level.

2. **Android AppDev** stipulated development of an android application to assist or improve the reconstruction and rehabilitation efforts in the flood-stricken Uttarakhand as a part of our social commitment towards our calamity stricken brethren.

3. **Jugaad** focused on the problems faced by hostel dwellers and attempted to provide cheap and feasible solutions to the issues raised by the junta. Working prototypes were made for the workers safety issue faced at the campus.

4. **SnT Code** enunciated the spirit of Snt Council in terms of its set objectives to engage the individuals with multi-expertise as well as the newbies to explore the realms of multi-sphered problem statement.  
  
Many more events such as **Sundial Making Competition, Bridge Design Competition and Crime Run** were introduced for the first time and was well received by the junta.

Out of the fifty events scheduled, one event had to be scrapped due to unforeseeable circumstances:  
1.  **Eureka,** as several entries of a pool went into the spam folder of the gmail account holder (Event Coordinator) and could not be judged

**Event Wise Post Conduction Report:-**

**1. Cruise Control**

*Pool Event, Open-To-All*

*Points: 35*

Event is open to **FIRST** and **SECOND** yearites only.

A newer problem statement was tested this year and was very successful. Each pool made 2 gliders. The main purpose of the problem statement was to test design, fabrication and flying skills of the students.  
The event was exclusively for first and second year students to encourage flying skills in second year students.

The event was organize on airstrip in morning 6 am - 11 am. Event saw the participation of about 70 students.

**Recommendation:**

1. Ensure that you book air strip for events.  
2. Use 2 or more stop watch to note timings.

**Problem Statement:**

Design, fabricate and fly a wireless remote controlled aircraft (using electric motors only), which has all 3 degrees of freedom including roll, pitch and yaw and that can complete a specified task.

**Rules and Regulations:**

**It is a pool event and each pool has to make 2 aircrafts. The points of both the  
aircrafts will be cumulatively added. The teams will have to use 2 separate models each time.**

**Model Specifications:**

An aircraft is defined as an object that has the four forces of flight, namely lift, drag, weight (gravity) and thrust due to propeller acting on it at any point of time.

\*The aero model must be hand-made.

\*There is no limitation on the size of the plane.

\*The Aero model must weigh less than 1 kg.

\*The model must be hand launched.

\*Use of landing gear is prohibited.

Only electrical motors are allowed which will be same for each pool.

The potential difference, between any two points on the machine, must be lower than or equal to 12.6V at any point of time during the competition.

The participants are free to use the materials of their choice. However the use of Balsa wood or foam (sun board) or sun pack (coroplast) or thermocole is advisable. Foam is light, easy to handle and fabricate the aircraft making it the best choice.

Participants must make all parts of the aircraft themselves. Usage of Ready-to-Fly (RTF) and Almost-Ready-to-Fly (ARF) kits is strictly prohibited. Use of readymade actuators/motors, remote controls and propellers is allowed.

Use of gyroscopes (gyros) is prohibited.

If anyone is found not following above rules, they will be disqualified. Use of CF rods allowed for strengthening.

**Judging Criteria:**

Designing of an aircraft is a very important part of this competition. The flight tasks in competition include good controls and speed. So your aircraft should be such that it can perform the given tasks effectively.

**The tasks for the competition are:**

Take off and safe landing.

**\*\* Before the start of the event for each pool the coordinators will trim the controls of the aircrafts which will be verified by the respective flier and he has to land the aircraft within 1 min. After the verification of the controls by the flier the actual event will start.**

**Round 1 :**

* Each flier will have to take the plane to the maximum possible height within the first 20 sec after the take-off.
* After 20 sec. the throttle will have to be cut off by the flier himself**.[Not doing so will lead to the disqualification].**
* After throttle has been cut -off the "GLIDING TIME" of the plane will be noted.
* Landing has to be done safely and only on the "Airstrip" not on the grass field, then **+5 sec** will be rewarded. If the plane lands on the grass field "SAFELY" then **+5sec will be not be given**.
* Crash landing will invite a penalty of **-10 sec.**

**NOTE:-**

**1. Similar rules will be followed for the 2nd aircraft from each pool.**

**2. Each pool can have either one or 2 separate fliers for the 2 planes.**

**3. If, at any point of time coordinators feel that the aircraft is going out of control or out of the airstrip then the transmitter will be immediately taken from the flier and clock will be stopped. The time only upto that point will be considered.**

**Note: In case of any disputes, the decision of the coordinators would be final and binding to all.**

**2. Hover Rugby**

*Pool Event, Open-To-All*

*Points: 50*

Most successful and loved stage event in Takneek. Event matches are well enjoyed by the contestants and Junta. Event was quit glitch free and saw very much improvement in the design of hoverbots.

**Recommendation**:

1. Ample batteries should be ordered.  
2. Have extra transmitter receiver .  
3. Display score on projector.

**Problem Statement**:

Each pool has to design and fabricate 2 hovercrafts that are light-weight, easily maneuverable, quick and strong. They must out-throw their opponent in a match of hovercraft rugby. Also they must enter the goal area to score points.

**Rules and Regulations**:

 A hovercraft is a vehicle which floats on a cushion of high pressurized air and propels itself on this air-cushion using a thrust producing mechanism. 



 Control is generally achieved by the use of rudders, though it is not the

 only solution. 

 The overall hovercraft dimensions must not exceed 50cmX50cmX50cm. 



 The model can be fabricated using foam, wood, coroplast or any other material

with permission from the coordinators which will not damage electronic

 components of bots like knives , pointed pencils , iron rods etc.

  Participants must make all parts of the craft themselves. 

 Usage of readymade kits is strictly prohibited. Use of readymade 

actuators/motors, remote controls and propellers is allowed.

 The use of IC engines is prohibited. Only electrical motors are allowed. 

 A team has to use 2 models at a time throughout the competition. However, 

spare models can be fabricated, if material permits. In case of any damage to the craft, small modifications are allowed.

 The potential difference between any two points on the hovercraft must not exceed 12V. 

If anyone is found not following above rules, they will be disqualified.

**Arena**:

The overall arena is a flat surface, with 2 goal posts and **some obstacles in between.**

**Event Structure:**

 Each match between two opponents will contain three sets of 3 min time duration each. 

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 Each team will play matches against every other team, thereby producing the overall result, thereby producing 3rd ,4th directly and the 2 finalists. 

 **In case of tie in a match i.e both the pools have exactly same score at the end of a particular match, the method of “GOLDEN GOAL” will be followed.**

 **n case any three pool win 2-2 matches each or 1-1 match each then following method will be followed**

For example pool(A,B,C,D):

**1.** If pool A wins all the 3 matches it will directly go in the final round. Now, for deciding 2nd ,3rd then if Pool B wins against Pool C but losses against D and A, then the points for the Pool B will be calculated as follows**-**

**X1= Score of Pool B – Score of Pool C (in a match in which B defeats C)**

**X2=Score of Pool B – Score of Pool A ( in a match in which A defeats B)[X2 will**

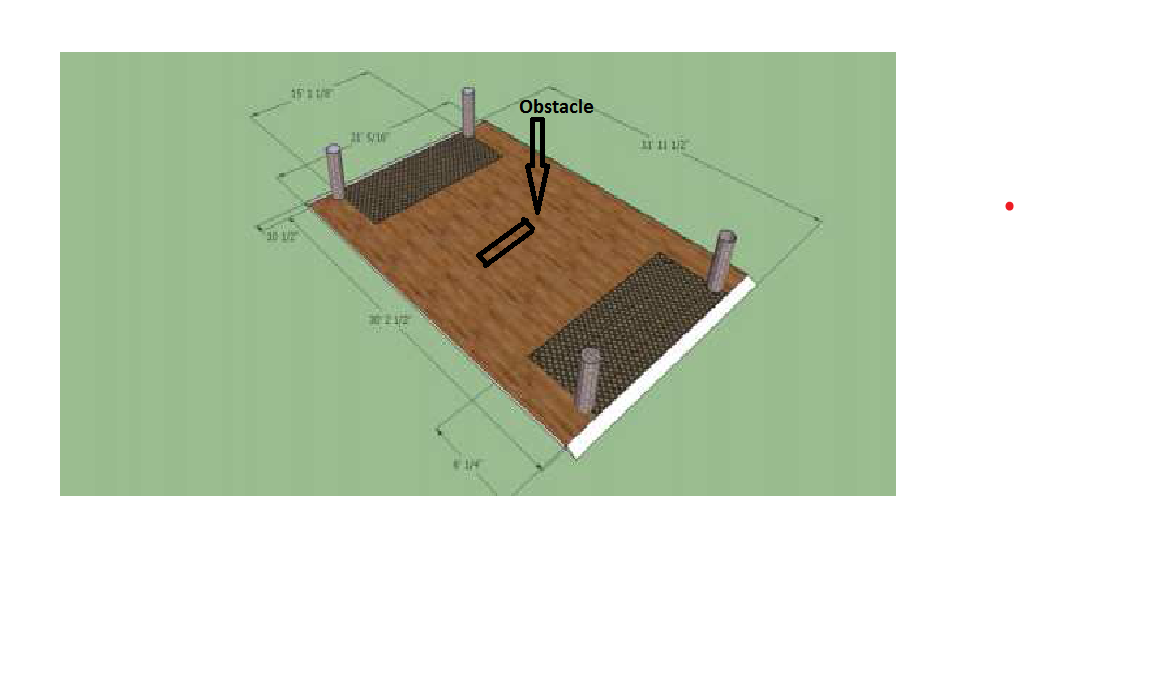
**be negative in this case]**

**X3= Score of Pool B – Score of Pool D ( in a match in which D defeats B)[X3 will be negative in this case]**

 Final score of Pool B= **X1+X2+X3,**

**Similarly final score of Pool C and D will be calculated. Note that in this case to calculate the final score of a pool, the points scored during the golden goal would not be counted.**

**2. Similar criterion will be followed for the Final score of other Pools.**

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**3. If, X1+X2+X3 will be also be same then the winner will be decided by the “GOLDEN GOAL**”.

  Your craft has to enter the opponent’s goal area between the 2 poles.

 Both the crafts can also attack at the same time. 



 Score for each craft will be summarized separately, then added with its partner

 to give the total score for a team in that set. 

 The scores of each set will be independent, the team winning more number of

sets will be the winner of the match. 



 In case of tie after 3 sets, there will be golden goal, i.e. the team scoring the first

goal will win.

**Match Rules:**

 Each successful goal will lead to a +5 for that particular craft.

There are no negative points if hovercraft touches the boundary. Human intervention will lead to -2 points. 



 A set will not stop until the 3 min duration, irrespective of how many goals

are scored or how many times the crafts fall. 



 Once the attacking craft scores a goal and lands on the OAT surface, it has to

restart from its home goal area. 



 If the defender falls from the incline and can come up without any manual

interference (touching, etc.) no points will be deducted. If manually it is put onto the arena, 2 points will be deducted for that hovercraft. 

 If a craft falls from the edge, it has to be manually put back onto the pitch from that boundary position with the deduction of 2 points.

 Each team is allowed to take 2 timeouts of 45 seconds each in each set. 

**Activities allowed:**

Hitting the other craft

Dragging the other craft to the edge

Any other thing you may imagine!!!

Using any kind of fire, spray, liquid or any other activity that may cause serious damage to the arena or the electronics (as per coordinators discretion) is not allowed.

**Components:**

Below are the components that will be provided to each pool. Apart from these, each pool is authorized to purchase any other materials required at the expense of their respective pool budgets, on proper verification of bills by us.

**The materials provided to you include:**

4 electric motors

Two 9gm servos

4 propellers

4 ESC

One 2mm coroplast sheet

Batteries, receiver & transmitter will be provided during practice slots only.

***Note: In case of any disputes, the decision of the coordinators would be final and binding to all.***

***3. Aqua Drive***

*Team Event, Open-To-All*

*Points: 15*

Water rocket event specially for first year students.

Again enjoyed very much on hockey field. Event saw participation of more than 80 students.

**Recommendation**:

1. Event took more than expected time try to reduce no. of trials given to teams.  
2. Keep limit on maximum of pumps (around 20 - 30) or else air pump gets damage.  
3. Take permission of hockey ground in advance to avoid in between problems.

**Problem Statement:**

Design and fabricate water rockets for the 2 rounds-

**Round 1-** **maximum range,**

**Round 2**- **maximum time of flight**.

You are allowed to make and use more than 1 model for different rounds.

**Rules and Regulations:**



 Plastic bottles of 1.5ltr – 2.5ltr can be used for the main body. 

  Metal sheets in any form cannot be used. 

 Models should be handmade, readymade rockets will not be accepted. 



 Your model can be of any size or shape and can be made of any material. But, it

should not damage the arena or hurt any person. If your model is found dangerous, you will not be allowed to participate in the event. 



 The water rocket may contain any of the following mechanisms suitable for

 different rounds: 

 Gliding (wings type) mechanism 

\*\* Booster mechanism: in this case, participants should ensure that they have

 proper launchers supporting the launching mechanism 

\*\* Any other innovative mechanism will be encouraged provided that the

material and mechanism used is not harmful or dangerous to any person in 

the field

**In this case the decision of the panel of coordinators will be final and no queries will be entertained in this regard.**

**Team Specifications:**

A team can consist of a maximum of **3 members.** Maximum **5 teams** are allowed from each pool. Top 10 teams of the 1st round will qualify for the

2nd round i.e time of flight

**Arena:**

The Launch Zone for both rounds will be a circle of 1 m diameter.

**Event Structure:**

**Round 1 - Range**

The water rocket has to be launched from launch pad and will be tested for maximum horizontal range. Top 10 teams will qualify for the 2nd round.

**Round 2- Maximize time of flight**

You can use parachutes of any other innovative ideas to maximize the time of flight. The use **of any electronic components in this event is strictly prohibited.**

***Scoring Criteria:***

**Point Distribution for Round 1:**

Each team will be given a maximum of two trials. Best of the two trials will be considered as follows. The distance covered in meters will be directly equal to the points you score in this round. This score will be called “A”.  ***Round one is only the qualification round.***

**Point Distribution for Round 2:**

Time of flight is calculated in seconds, depending on the round 2 scores teams will be considered as 1st,2nd,3rd and 4th..

**TIE- Condition-**

In case of tie the teams will have to repeat the problem statement until we get a winner. This rule will be followed in both the rounds.

***Note: In case of any disputes, the decision of the Coodinators would be final and binding to all.***

**Astro Event’s Post Conduction report**

All events were conducted succesfully without any major problems. As compared to the pre-conduction report, the following changes were made :

1. In the rules and regulations or Heavens Above, the rules pertaining to the number of teams selected for the 2nd round was changed to   
   'At the end of the first round, 30% of the number of teams that participated for the first round, or 15 teams, whichever is \*larger\*, ...'

* In astrophotography, in the star trail section, i.e. section B, the first point was changed to 'A maximum of one entry will be allowed per pool'. This was done in light of the large possibilities of adverse weather conditions.
* In the sundial making competition, the minimum eligibility criteria was changed from 'given by the sundial be greater than half an hour.', to 'given by the sundial be greater than half an hour(Earth hours).'
* In the the Astrophysics problems upon realizing that there was a possibility of a pool misusing the rules to their favour, we made this pool event, with no restriction on the number of entries per pool. The best of multiple entries of a pool was chosen to rank a pool as compared to other pools. The minimum eligibility criteria was made that a single entry was required from each pool.

All changes were informed to the Takneek Overall Coordinators by the 18th itself, well before the actual events.

Apart from this, The first 2 stages of Astrophotography were canceled owing to bad weather conditions. The third round though was weather independent and was successfully conducted. This round was used to assign points. Similarly, the last round of Heavens Above was canceled due to adverse weather conditions, and thus the points were decided on the basis of the first 2 rounds, assuming everyone got a score of 0 in the third round.

Astrophysics problems

Mauryans - 23.2 /49 1st

Rajputs - 20.55/49 2nd

Mughals - 19.25/49 3rd

Marathas - 11.7 /49 4th

Astrophotography

Mughals - 1st

Mauryans - 2nd

Rajputs - 3rd

Marathas - 4th

Heavens Above

Mughals -66.6/100 Team name:Skywatchers 1st

Mauryans -66.2/100 Team name:Nocturnals 2nd

Rajputs -65.6/100 Team name:Herd of Nerds 3rd

Rajputs -62.4/100 Team name:Nakshatra 4th

Sundial Making Competition

Mauryans - 1st

Marathas - 2nd

Rajputs - 3rd

Mughals - Did not satisfy minimum eligibility Criteria

AstroQuiz

Rajputs - Team name:Akashvani 1st

Rajputs - Team name:MFS 2nd

Mauryans - Team name:Nocturnals 3rd

Mauryans - Team name:SkyHitters 4th

**4. Heavens Above**

*Team Event, Open-To-All*

*Points: 30*

**General Guidelines:**

1. This is a team event. No limit on number of teams per pool.
2. Teams should register in advance.
3. There can be at most 3 members. All the members must be from the same pool of hostels.
4. For every round, the teams will be given a particular time slot and teams will have to be present during that time at the venue.
5. Any delay of more than 5 minutes will lead to the disqualification, unless any of the astronomy club coordinators is informed at least 30 minutes before their respective slot.
6. In case of any disputes, the decision of the Astronomy Club coordinators will be final and binding.

**Event structure:**

The event will be held in 3 separate rounds which will have different

1. The first round will test the participating teams’ basic understanding of astronomy, the sky and other introductory concepts in related topics.
2. The second round will be a slightly more technical approach to observational astronomy, and may involve some very basic level of numerical analysis of observed data.
3. The third round will require more direct knowledge of objects in the sky, and will also comprise of a component of instrument usage.

At the end of the first round, 30% of the number of teams that participated for the first round, or 15 teams, whichever is larger, will qualify for the 2nd round. At most 8 teams will qualify for the 3rd round. The final ranking will be decided on the basis of the score achieved by each of these 8 teams in all three rounds combined, with the weightages of rounds 1, 2 and 3 in the ratio of “Equatorial diameter of Uranus : Equatorial radius of Saturn : Equatorial radius of Jupiter” respectively. (All data is as taken from en.wikipedia.org)

Note: In case of tie between the teams after all the three rounds, we will have a questionnaire round.

**5. Sundial Making Competition**

*Pool Event, Open-To-All*

*Points: 20*

**Rules and Regulations:**

1. This is a pool event, i.e. exactly one entry will be entertained per pool.
2. Each pool will be required to submit a sundial satisfying the following conditions:
   * The sundial must be accurate to keep time to the Galle crater on Mars ([http://en.wikipedia.org/wiki/Galle\_%28Martian\_crater%29](http://en.wikipedia.org/wiki/Galle_(Martian_crater)))
   * Standard Martian conventions are expected to be used.
   * Along with the physical sundial in itself, orthographic projection drawings are also required to be submitted.
   * Additionally, a short write up would be preferable, but not essential, explaining the working of the sundial. If any conventions apart from the standard Martian conventions are used then they must be included in the write up.
3. The submission has to be done by 1st September, 12 noon as has to be done to the Astronomy Club Coordinators.
4. Judging criteria
   * Judging will be based on both accuracy as well as precision of the sundial.
   * **Minimum Eligibility Criteria**: At no point should the difference between actual time and time given by the sundial be greater than half an hour (Earth hours). If any pools submission has a greater difference, then that pool shall receive no points for this event.
   * Unnecessary assumptions will be downgraded.
   * Exact judging criteria will be revealed immediately after submission.
5. In case of dispute, the decision of Astronomy Club coordinators will be final.

**6. Astrophysics Problems**

*Pool Event, Open-To-All*

*Points: 15*

**General Rules:**

1. It will be an individual event with minimum of 1 entry per pool.
2. There is no restriction on the number of entries from a pool.
3. The best entry from each pool will be used to rank a pool as compared to other pools
4. **Minimum eligibility criteria:** Minimum of one entry from each pool.
5. A set of theoretical problems on Astrophysics would be uploaded on the Takneek website.
6. Participants have to mail a solution to astronomyclub.iitk@gmail.com before 1st September 12 noon.
7. In case of any disputes, the decision of the Astronomy Club coordinators will be final and binding.

**Format of the event:**

Some astronomy/astrophysics related problem statements will be posted online. If you require any extra data except for that which is supplied with the problem, you can search on internet, library etc. In case you assume some data, which is not trivial according to the question, a proper mathematical justification is required to support your assumption and solution. Judging will be conducted on the basis of the accuracy of the solutions provided. Unnecessary assumptions will be downgraded. Star marked questions will be used to resolve ties if required.

**7. Astrophotography**

*Pool Event, Open-To-All*

*Points: 25*

**General Rules and Regulations:**

1. This will be a pool event.
2. There will be 3 parts in this event.
3. The participants will have to know how to use a telescope and a DSLR camera before they come for the event.
4. All photographs taken should be taken in RAW format.
5. The participants of stages B and C may be asked to explain the technique they have used in processing the images.
6. Any delay of more than 5 minutes from the slot provided will lead to the disqualification, unless any of the astronomy club coordinators is informed at least 30 minutes before their respective slot.
7. In case of any dispute, the decision of the Judges will be final.

**Event Structure:**

This event will be conducted in 3 parts

1. **Lunar photography**

* A single team with a maximum of 3 members per team can take part from each pool.
* The participants will be given a list of lunar craters and maria, of which they have to take photographs using a telescope.
* Each team will be given a slot of 30 minutes for this round. The participants will not be allowed to practice or set up before their time starts
* They will be required to submit all photographs and select ONE, which will be considered for judging, at the end of their slots
* The entire crescent of the moon should be visible in the photograph
* The slots will be fixed on the basis of lottery. No request/dispute regarding this will be entertained
* **Minimum eligibility criteria:** All the lunar maria/craters in the list should be visible clearly. If it is not fulfilled, the pool will be awarded 0 points for Part A.
* In the case that the club coordinators believe that there were clouds or other related factors, hampering the quality of the image, for even one of the slots, then the score for this round will not be used.

1. **Star Trail**
   * A maximum of one entry will be allowed per pool
   * The final processed image should have a total exposure of at least 45 minutes
   * All of the unprocessed (in RAW format) and the processed(PSD format) photographs should be submitted by 11:00 am 1st September
   * The layers in the final PSD file must not be merged.
   * The photographs should be taken after 29th August. Any photographs taken on the 30th must not be taken earlier than 6:00 am.
2. **Image processing**
   * All the teams will be given a set of photographs which they will have to process and submit
   * The softwares used must belong to the following list
     1. CorelDraw
     2. MsPaint
     3. Shotwell Photo manager
     4. Microsoft Picture Manager
     5. Registax
     6. Starstax
     7. Adobe Lightroom
     8. Adobe Photoshop
     9. AstroArt
   * Further details will be provided when the images are distributed to the teams

**Judging:**

1. All rounds will have equal weightage.
2. The factors that would be taken in to account would be
   1. Focusing, framing and contrast for A
   2. Noise reduction, focusing, framing, enhancement and contrast for B and C
3. Judging will be done by a professional Astrophotographer outside of IIT Kanpur.

**General Instructions:**

* Everyone who wish to participate in these events are advised to attend the lecture and/or workshop that will be conducted
* Participants can have practice sessions in the club. They will have to inform the coordinators

**8. Stocksim**

*Team Event, Open-To-All*

*Points: 25*

* Simulated Real world Trading with Virtual Money
* The online stock trading simulation game.
* There is no limit on the number of participants.
* The winners of phase 1 would be decided on the basis of ranking on 26th August 11:59 p.m.
* Phase 1 would be of 10 points.
* The overall winners will be announced based on the performance of the participant till 31st August 11:59 p.m. and this would be of 15 points.
* The points scored by all the members of a pool will be added to find pool wise standings.

**9. Case Study Presentation**

*Pool Event, Open-To-All*

*Points: 20*

* The event will require participating teams to strategize their decisions and present to us the most feasible and possible solution to the case.
* There will be two rounds in the event-prelims and mains.
* A team can have maximum 3 members
* There is no restriction on the number of teams in the preliminary round.
* In the first round, teams will have to solve the case(s) and submit the solution in one hour.
* Top two team from each pool will be selected
* Each pool’s selected teams will be given a case and they will have 45 These teams are then required to present before the judges for 10 minutes, after which there will be questions from the judges
* The scores of both the teams in the pool will be added and the winners will be decided on a pool basis.
* The teams will be judged on the effectiveness of the solutions, any good insights and approximations they make and also on their presentation skills.

**10. AOE Stragedy Game**

*Pool Event, Open-To-All*

*Points: 20*

1. The Event consists of the Age Of Empires Game (Part2)- Conqueror’s Expansion Version.
2. The event shall take place in the Computer Centre via LAN Connections.
3. The Event shall NOT Consist of any introductions and hence a brief knowledge of the Game is required.
4. The game will consist of 2 Maps, each consisting of 4 (2 teams in total from each pool) Contesting Teams. Hence a total of 8 teams.
5. The maximum team size per Contesting team is 3.
6. Each Game shall consist of 10 Points, with the position wise grading as follows-
   1. Position One- 10 points
   2. Position Two- 6 Points
   3. Position Three- 3 Points
   4. Position Four- 1 Point.
7. The ranking within every Game shall be as follows
   1. First Position- Winner
   2. Second Position- Highest Game Score after Winner
   3. Third Position- Second Highest Game Score after winner.
   4. Fourth Position- Lowest Game Score.
8. From every pool at least 1 team from the 2013 Batch is MANDATORY.
9. The scenarios and the map shall be randomly assigned on the spot.

**Electronics Event’s Post Conduction Report**

Continuing with the club’s aim of teaching, helping people understand the seemingly incomprehensible electronic gadgets in the world today, and assisting people in developing their own devices, Electronics Club had three events to expose the students to logic, circuit and hardware design.

This year club had three events, targeting beginners, intermediate and pro circuit designers.

**11. Electromania**

*Team Event, Freshers*

*Points: 30*

This event was aimed to provide an introductory challenge in seemingly vast world of circuit design. To make their expedition easy and fruitful, lectures and workshops were organised which witnessed a huge turnout. After the problem statement discussion, around 38 teams with team size of 3-4 members registered for the event. Under the sincere and informed guidance of club secretaries, significant number of teams ended up with working circuits. Result of the event is appended below:

**1st** Sandipan Mandal ,Prakhar Kulshreshtha , Devendra Sunariwal , Amit Gupta

**2nd** Ayushi Gupta , Sanjari Shrivastava , Arpita Sharma , Mausumi Mohanta

**3rd** khemkaran Sevta , Ayush Shakya , Rahul Gupta , Bhavishya Raj

**4th** Abhinav Raj , Devashish Kumar , Aman Gajraj , Lavanya Bathwal

The quality of the event was satisfactory by all concerns, nevertheless it could have been better, if a prelims could have been organised at least 5 days prior to the main event. The event was strict to

the schedule, with events wrapped within allotted time slot. Allotment of team wise mentor helped a lot for the success of the event.

**PROBLEM STATEMENT:**

The aim of the competition is to design the game “**Simon Says**” using LED’s to represent the sequence. In this game, a sequence of LED glows randomly and the player has to memorize the sequence. The LED is turned off and now the player has to enter the sequence, which was shown. The game continues in case of a correct sequence guessed and ends otherwise.

**COMPULSARY FEATURES:**

**LED array:** Minimum of five LEDs to display the sequence.

**Sequence Input:** Five switches corresponding to each LED.

**Minimum sequence length:** Your circuit must work for sequence length of at least one LED i.e. you should display any one LED randomly out of the 5 LEDs and then player needs to press the corresponding switch to win the game

**ADDITIONAL FEATURES:**

Apart from the compulsory features, various additional features can be added to the circuit like:

* **Sequence length** to be memorized can be increased up to 5.
* **Scoring mechanism** to count the number of correct sequence entered.

These are just some of the additional features. Apart from these,any other innovative additional features can be implemented.

**RULES AND REGULATIONS**

**Eligibility & Team structure**

* Students belonging to Y13 batch of any program (B.Tech , M.Tech etc.) are eligible.
* Team strength should be minimum 3 and maximum 4.
* There are no restrictions on number of teams from a pool. Though all members of a single team should belong to the same pool.

**General Rules**

* Only basic ICs (555,4xxx and 7xxx) are allowed. Use of an encoder is allowed. Use of any other special IC should be intimated to us.
* The circuit should be built on a breadboard and can’t be soldered/simulated. Do note that the judging criteria favour a proper layout of the components and also a robust circuit.
* Judges decision shall be final and binding on all.
* Judging shall be subjective.

All of the above rules may be subject to change as they deem fit. Change in rules, if any will be highlighted on the following links:

Electronics Club Website: http://students.iitk.ac.in/eclub/

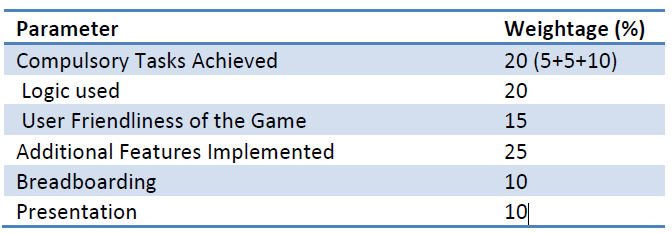
Takneek Website: <http://students.iitk.ac.in/takneek/2013/>

**JUDGING CRITERIA**

Judging shall be done on basis of:

* **User friendliness** of the gadget.
* **Robustness and innovation** in design of the gadget. (use of logic for the problem statement)
* **Breadboarding** and **layout** of ICs.
* **Extra features** implemented.
* **Presentation** (either a power point presentation or a neat block diagram can be used)
* Judges would be faculty of Department of Electrical Engineering, IIT Kanpur and/or senior members of the Electronics Club.

**POINTS DISTRIBUTION**



**12. Embedded Design Challendge**

*Team Event, Open-To-All*

*Points: 40*

This event targeted electronic maniacs who had the courage to accept the challenges in the field of hardware, who had the capability to turn imagination to reality and who had the patience to cope up with the surprises. 12 teams each of 3 or more members registered for the event consisting of second year students. Though only 5 teams could implement the problem statement successfully, the extent to which it was implemented was truly appreciable. Result of the event is as follows:

**1st** Anand Kumar, Ayush Agrawal ,Nikhil Rastogi

**2nd** Shubham Agrawal ,Harshit Rathore ,Elle Prakash

**3rd** Shubham Atreja , Subhrajeet Paul , Shreyash Pandey , Shubham Sonewane

**4th** Pranav Kumar , T.Raghuveer , Mayank Jain , Anurendra Kumar

The participants needed a little more time, which solely is the main reason for meagre number of successful circuits.

**PROBLEM STATEMENT:**

To design and build a game running on an arduino with the keyboard and GLCD as input and output devices respectively.

The participants will have to design the following features of the device:

**Compulsory Features**:

**Keyboard:** Your device should have a PS2 or USB keyboard interfaced with the arduino to give all sorts of input.

**Display:** The device must have a GLCD interfaced with it as the display.

**Game:** You need to design a “bubble burst” game. In this game bubbles containing random alphabets will float up/down the screen. You need to burst the bubble using corresponding alphabet on the keyboard. You should display score and time passed/remaining.

**Additional Features:**

Apart from the compulsory features, various additional features can be added to the device like

1. Game can be made multiplayer
2. Features like displaying high score, various modes (classic, arcade etc.) can be implemented
3. Additional games or apps(e.g. notepad) can be designed
4. Music can be played during the gameThese are just some of the additional features. Apart from these, any other innovative additional features can be implemented.

**RULES AND REGULATIONS**

**Eligibility & Team structure**

 Students belonging to any batch or program are eligible.

 Team strength should not exceed 4.

 All the members of a single team should belong to the same pool.

 Maximum 3 teams are allowed per pool.

**General Rules**

 Use of pre-built modules is **strictly** prohibited. All the modules should be self-made. You can however use Arduino boards.

 Only basic ICs (4xxx and 7xxx) and 8-bit microcontrollers are allowed. Use of any other IC should be intimated to us.

 **The final circuit must be soldered on a General Purpose Board or on a PCB. Circuits on breadboard will automatically lead to disqualification.**

 The software written should be original and not copied from any other source. You can however use libraries.

 Judges’ decision shall be final and binding on all.

 Judging shall be subjective.

 All of the above rules may be subject to change as they deem fit. Change in rules, if any will be highlighted on the following links:

**Electronics Club Website:** [**http://students.iitk.ac.in/eclub/**](http://students.iitk.ac.in/eclub/)

**Takneek Website:** [**http://students.iitk.ac.in/takneek/2013/**](http://students.iitk.ac.in/takneek/2013/)

**JUDGING CRITERIA**

Judging shall be done on basis of:

 User friendliness of the gadget.

 Robustness and innovation in design of the gadget. (logic used and its implementation)

 Layout on PCB/GPB and Soldering

* Extra features implemented.
* Power point Presentation

Judges would be faculty of Department of Electrical Engineering, IIT Kanpur and/or senior members of the Electronics Club.

**POINTS DISTRIBUTION**

**Parameter Weightage (%)** Compulsory Tasks Achieved 20 (5+5+10)

Logic used and software implementation 20

User Friendliness of the device 15

Additional Features Implemented 25

PCB/GPB layout and soldering 10

Presentation 10

**13. FPGA**

*Team Event, Open-To-All*

*Points: 30*

For the electronics elites, who love to unravel the mysteries of the black boxes, where they were provided a way through Field Programmable Gate Arrays to beat the odds through their intelligent code and prove their edge over the rest of the world. An on spot event consisting of two rounds which had 12 teams appearing for the first round, of which 10 were moved to the second round. First was a questionnaire round based on the performance of which the teams qualified for the next round which consisted of code simulations. The result is attached below:

**1st** Prashant Jalan ,Siddharth Dangi

**2nd** Ankit Jalan , Ankit Goyal

**3rd** Siddhant Saurabh , Harshit agrawal

**4th** Hardik Soni , Akshay kumar

Team structure(at least one y12) ensured that a large number of candidates were benefitted by the event, for they had an introduction to FPGA design.

Overall, the events witnesses expected participation, saw innovative circuits, wonderful logics and sincere team efforts. And, importantly the events were strictly on time. The Takneek Coodinatos, judges and senior and colleagues were supportive throughout TAKNEEK.

**PROBLEM STATEMENT:** The contest is on the spot.

**Prelims**

Each team will have to give a half an hour quiz separately. The quiz will comprise questions on basics of Verilog (Hardware Description Language)

**Finals**

**Level 1:** Circuit Design using Simulation

Teams will be given some simple design problems. They will be required to write Verilog modules for the same.

**Level 2:** On board Design

Teams completing level 1 will go ahead and will have to simulate their result on ISIM/ModelSIM.

**JUDGING CRITERIA**

**Prelims:**

10 top scoring teams will move to the finals.

**Finals:**

**Level 1:**

Judging shall be done on the basis of:

 Number of problems solved

 Number of modules used

 Ease of understanding of the code

 Extra features if any

**Level 2:**

Teams will be provided points for this level only when their simulations of the problems solved by them work perfectly.

**RULES AND REGULATIONS**

Eligibility & Team structure

 Students belonging all batch and programme are eligible.

 Team strength should be 2.

 At least one member of each team should belong to Y12 batch. The Team could comprise of two Y12 Students but it could not be comprised of two non Y12 students.

 There are no restrictions on number of teams from a pool. Though all members of a single team should belong to the same pool.

**Judging**

 Judging shall be subjective.

 Judges decision shall be final and binding on all.

 All of the above rules may be subject to change as they deem fit. Change in rules, if any will be highlighted on the following links:

**Electronics Club Website:** [**http://students.iitk.ac.in/eclub/**](http://students.iitk.ac.in/eclub/)

**Takneek Website: http://students.iitk.ac.in/takneek/2013**

**14. Kodefest**

*Pool Event, Open-To-All*

*Points: 30*

Kodefest will be an online programming contest of 5-6 hours based on WPC (Weekend

Programming Contest) format.

**Team**

Maximum of 3 members. Only 1 member needs to sign-up on the judge.

**Rules**

1. The contest rules will be same as WPC/Codemania.

2. **Pool Event**. Multiple teams from the same pool can register.

3. To prevent code copying within a pool, points will be allotted for each question based on the order in which each pool solves every question.

After a successful submission for a question from a pool ,no further submissions for that question from that pool will be accepted. The pool which gives the first correct submission for a question will get 50 points for that question, second correct submission - 30, third correct submission - 15, fourth correct submission - 5, no correct submission - 0.

4. In the end, the pool with maximum points wins.

**15. Blackbox**

*Team Event, Freshers*

*Points: 25*

BlackBox is an on-the-spot problem solving and programming competition restricted for the first year junta ONLY.

**Team**

Maximum of 2 members. No restrictions on the number of teams from a pool.

**Format**

Consists of 2 rounds

**Prelims** - Written round consisting of Logical questions, mathematical puzzles and basic Python programming questions. The top 30 teams will qualify for the final rounds. In case of a tie, at the position either all teams would qualify for the second round or none. However

teams qualifying for the final round would also have to clear the minimum cut-off of 25% of total score.

**Finals** – The final round would be conducted in Computer Center where the teams would be

required to code in an unknown language (not C, C++, Java or Python). This is an 2 hour event and the team with the maximum number of correct submissions in the minimum time would walk away as the winners.

**Rules**

1. This is a **Team Event**. However, the minimum eligibility criterion for each 30 teams is that

each team must have at least 25% of the correct answers

2. In the second round the rules follow from the Kodefest that if the top 4 teams should have

20% correct submissions.

3. If any team is found cheating then that team would be disqualified from the event.

**16. Web Dev**

*Team Event, Open-To-All*

*Points: 25*

**Problem Statement**

Conceptualize and implement an application that allows users to search through the facebook feed. The final deliverable must at least include an interface to search through timeline of a given friend of the user or the user himself based on the given time interval and keywords and auto comment on the search results. Also document the app.

**Guidelines**

1. Team Event

2. Teams of up to 4 are allowed. There is no restrictions on the number of teams from each

pool.

3. Check out http://developers.facebook.com/docs/javascript/gettingstarted/ or search for facebook graph api if you are lost and dont know where to begin.

4. Feel free to use any open-source project/code but they must be appropiately documented your documentation. Any third party code that is not documented will lead to deduction in the total marks of your entry.

5. Although you are allowed to use existing code, there must be some value addition to 3 party code you are building upon. In stricter words, not more than 50% of your code can be 3rd party.

6. The search should at least take keywords time interval as parameter. But you are welcome to create a more advance search.

7. You are encouraged to make your UI as intuitive as possible.

8. There will be a final presentation of about 10 mins. in which you'll have to present your app in front of a panel of judges.

**Bonus Features**

The list is an idea of tentative extensions to the basic app described above. Feel free to use any or none of it in your project or implement your own ideas. Note that bonus features will play a crucial role in deciding the final positions.

1. Implement searching in group feed, news feed also etc.

2. Implement a robust searching algorithm (hint - fuse.js).

**Judging Criteria:**

1. Creativity(Bonus features): 35%

Implementation: 35%

UI/Design/User friendliness/interactivity : 25%

Documentation : 5%

2. Note that to qualify for the final standings, the team must have a score of at least 40%

**17. Y13 PROBLEM STATEMENT**

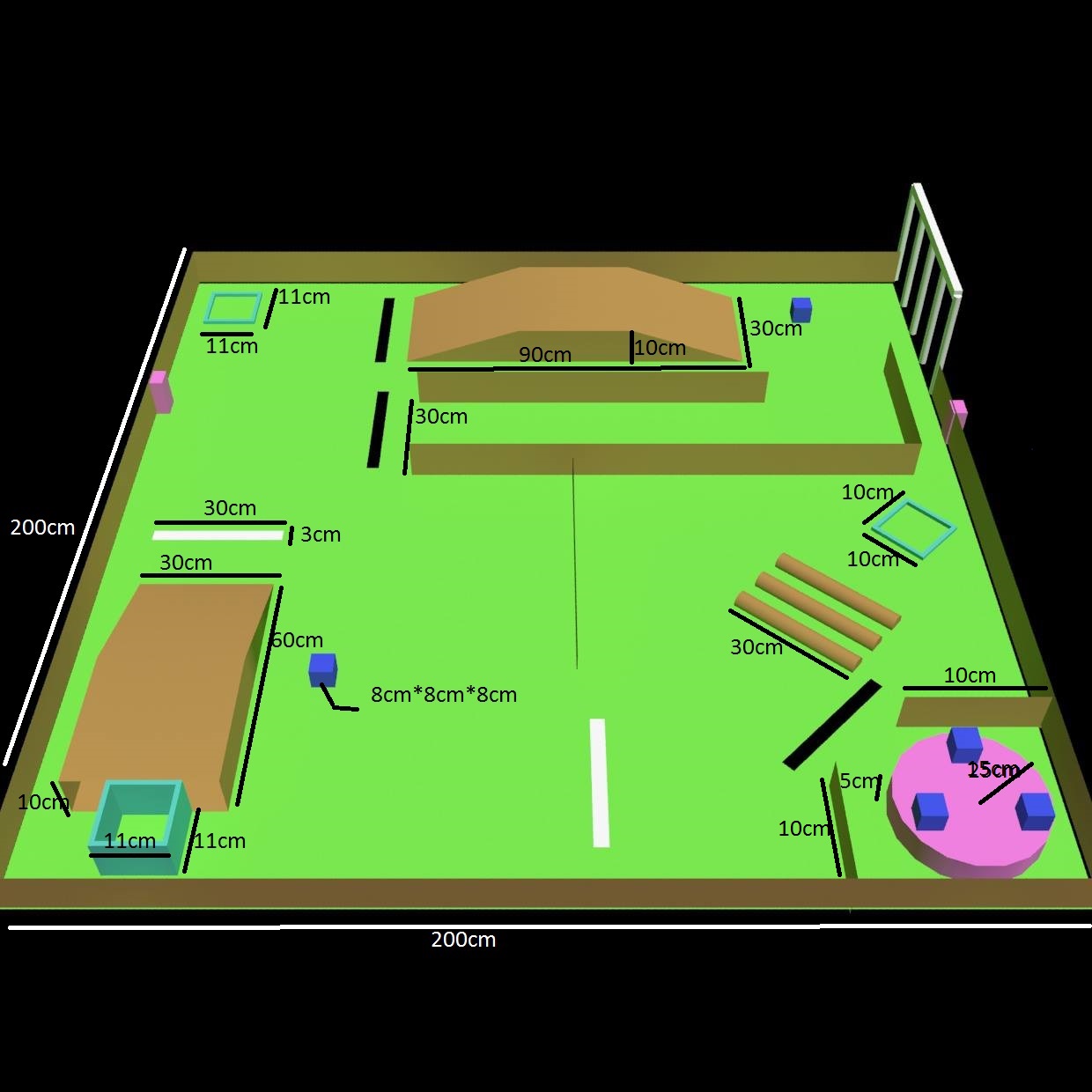
*Team Event, Freshers*

*Points: 30*

**Changes Made:-**

Due to Technical Reason the arena was modified at the time of event and the timing of event was also shifted. The Rotating table in the arena was not able to rotate due to technical glitches and so event was conducted with it being stationary.

Arena Specifications:



GAME PLAY

1.) The arena consists of a green background .Strips of black and white colour are placed randomly in the arena.

2.) The teams will start the game from outside the arena. A push button is placed near the gate which needs to be pressed to open the gate to the arena.

3.) As soon as the bot enters the arena it encounters a block of dimension 8cm\*8cm\*8cm which has to be picked up and placed in the basket-1.

4.) In order to reach basket-1 teams will either have to cross a bridge of height 10cm, length 90cm and width 30cm or an alternate path is also provided.

5.) In the path to the basket there will be a black strip which needs to be detected with a glow of LED.

Note that the points for correctly detecting the black strip will be allotted only once.

6.)After this the bot will have to pick up a block of dimension 8cm\*8cm\*8cm placed near the wedge of height 10cm , length 60cm and width 30cm, then climb the wedge detecting the white strip placed in the path with a different colour LED and then finally put the block in the raised basket. Note a team will be awarded points for correctly detecting the colour strip before the wedge only once.

7.) Then the bot will have to go towards the turn table detecting a white strip in the path. Points for correctly detecting the white strip will be given only once. In order to access the blocks of dimension 6cm\*6cm\*6cm kept on the turn table of height 5cm the teams will either have to detect the black strip near the turn table and then the turn table will rotate automatically or they will have to return back, take a longer path and press the push button kept in the arena near the basket-1 to rotate the turn table.

8.) The points for correctly detecting the black strip will be given each time it comes to pick block 'i+1' after placing the block 'i' ie. 3 times only and there would be only one block placed on the turn table at a time and hence they can carry one block at a time. Also, the block will be placed on the diametrically opposite side from where the robots can access the block (ie. At the extreme corner) before the turn table starts rotating and any attempt to pick the blocks from the turn table if the turn table is not rotating will lead to immediate disqualification. This means if the black strip before the colour strip was not identified correctly, then the robot has to compulsorily go back and press the push button as shown in the arena to access the blocks on the turn table.

9.) Now to place these blocks in the basket-3 the teams will again have an option either to take a path with speed breakers to score extra points or a simple alternate path. The teams will be given points for crossing the speed breaker while carrying the block only and if the block falls during the traverse over the speed breaker then no points will be given. Also, the teams will be allotted points only once for each block so they can gain the bonus points for traversing over speed breaker 3 times only.

10.) The teams have to put the 3 blocks kept on the turn table one by one into the basket-3 and the timer stops when they place the third block in the basket.

11.) The weight of the blocks is around 50 grams and the basket-1 and basket-2 are of dimensions 11cm\*11cm while basket-3 is of size 10cm\*10cm.

Rules:

1.) The bot size shouldn’t increase 25\*25\*25 cubic cm initially, and weight should be less than 2kg.

2.) You have to use LED’s to distinguish between the colours of strips and arena i.e. white, black and green.

3.) The bot can expand during its run.

4.) The bot has to be kept within the starting point initially.

5.) The bot has to move within the arena at all points.

6.) The voltage difference between any two points in the bot shouldn’t exceed 20 V and there would be provision of power supply at the arena.

7.) Use of Lego-kits is prohibited.

8.) Tethered control is not allowed.

9.) All the teams will be given 2 trials of 5 minutes each in which they will have to try to score the maximum points.

10.) In case of tie, the following criteria will be considered in the given preference order:

a) no. of blocks placed

b) no. of strips detected

c) Team placing the last block earliest will be given preference

POINTS STRUCTURE

|  |  |  |
| --- | --- | --- |
| S.No | PARAMETER | POINTS |
| 1 | Strip detection | 30 each |
| 2 | Picking block 1 and block 2 | 10 each |
| 3 | Picking block 3-5 | 20 each |
| 3 | Placing Block in basket-1 | 10 |
| 4 | Placing Block in basket-2 | 20 |
| 5 | Placing Blocks in basket-3 | 20 each |
| 6 | Manual interference | -20 |
| 7 | Wrong strip detection | -10 |
| 8 | Going Out of the Arena | -20 |

BONUS POINTS

1.) crossing the bridge –> 20 points

2.) crossing the speed breakers -> 10 points each time

MAX POINTS POSSIBLE

1. LED detection - 30 \* 6 = 180
2. Picking blocks 1 and 2 - 10 \* 2 = 20
3. Picking blocks 3, 4, 5 - 20 \* 3 = 60
4. Placing Block 1 in basket 1 - 10 \* 1 = 10
5. Placing Block 1 in basket 1 - 20 \* 1 = 20
6. Placing Block 1 in basket 1 - 20 \* 3 = 60
7. Crossing the bridge - 20 \* 1 = 20
8. Crossing the speed breakers successfully - 10 \* 3 = 30

Total - 400 points

DISCLAIMER

In case of discrepancies, the decision lies in hands of the co-ordinators.

**18. Relay Race**

*Pool, Open-To-All*

*Points: 30*

# TASKS

* EACH TEAM WILL BE REQUIRED TO MAKE 2 LINE FOLLOWING BOTS: ONE USING ATMEGA AND OTHER USING ARDUINO AS MICPROCESSORS.
* THESE TWO BOTS WILL TAKE PARTICIPATE IN A RELAY RACE.

# BOT SPECIFICATIONS

* \*Each team will made two line following bot one using arduino and other one using atmega. ( Bots are completely autonomous )
* \*Dimension of bot should not exceed by 20cm \*20cm \*20cm.
* \*Motors and wheels will provided by club. Except them no other motors and wheels will allowed.
* Bot must be started individually by only one on board switch. However you may have a separate switch for restart. These switches should be shown to the judges/organizers before starting the game.
* \*Potential difference between any two points on the bot should not exceed 12V.
* External power will be given to the bot.
* Violation of the specifications marked with a ‘\*’ will lead to direct disqualification of the team.
* Violation of any other specification will lead to deduction of 50 points from the score of each trial.

# GAME RULES

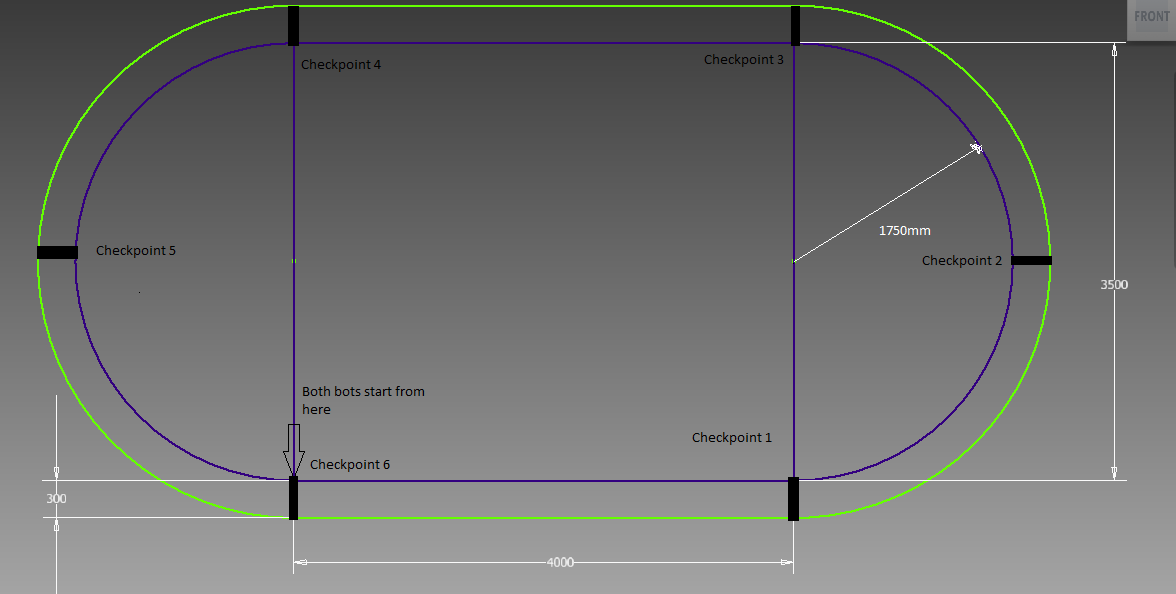
* Each team will be given a dry run before the game.
* This is a pool event so only one team will allow from each pool.
* Identical arena will be given to all teams.
* Bot will be placed on starting point and will start after signal is given.
* You can run any of the bots(Arduino or Atmega) earlier.
* At a time only one team will perform in a relay race.
* Total three trials will be given to each team. The best of them will be taken into consideration.
* After the start of the trial, no team will be allowed to touch the bot.
* Dimension of arena is given arena snap attached below.
* All dimension given in snap is in mm.
* You can change order of your bots in each trial.
* There will be a checkpoint system in relay race (as shown in arena snap).

### RULES OF RELAY RACING (BOTH BOTS):

* Both bot will start from starting line.
* Initially only first bot will present at starting line, and few second after race start second bot will be placed by any one of team member at starting position.
* It means in a successful race two rounds of arena will be covered by bots.
* Second bot should be move after physical touch of first bot.
* In a complete round of arena by a bot it will cover total 6 check points. It means when both bots complete their given path they cross total 12 checkpoints.
* Two checkpoints on straight path and 4 will be on curved path. ( As shown in arena)

MARKING SCHEME

* After successful completion of checkpoint which come in straight path bot will get +20 points, and which come in curved path bot will get +30 points.
* If communication between both bots happen successfully then +30 points are awarded.
* After communication(starting point ), 1st bot can travel a maximum of 1m from the starting point. After 1m, 1st bot will be removed from the track.
* Any manual interruption will lead to a deduction of 20 points.The bot will start from the last checkpoint covered.
* Whole body of bots should be in given lane, any deviation from lane deduct 20 points. After that bot can again start from the last checkpoint.
* Manual intervention is allowed maximum (total of both bots) 5 times. After that trial will be expired. And points in that trial will be points earned by bots before trial expired.Time count will not stop during intervention.
* Any kind of manual intervention is to be informed earlier to the co-ordinators.
* If communication is not successfully done, and second bot started manually with no extra points of communication.
* Pools will be ranked from one to four according to maximum points gain in their best trial.
* In case if points are same then pool which cover arena in less time (of the best trial) will get better position.
* In case of any controversy judges decision will be final.



**19. WILD SOCCER**

*Pool Event, Open-To-All*

*Points: 50*

**IMPORTANT RULES**

1. A team consists of students from same pool.
2. Each team can have a maximum of 6 participants on stage at the time of the event.
3. **Each team will have a representative (out of six present on the stage) who is the ONLY person allowed to speak to the referee and ask him to stop the game or report any issue. No person other than this will be entertained by the referee.**
4. The organizers reserve the right to change the rules as they deem fit.
5. Judges decision will be final and binding to all.

**GAMEPLAY**

Overall the gameplay is divided into 2parts i.e. ATV (Wild) and Soccer.

***ALL TERRAIN VEHICLES (ATV)***

**BOT SPECIFICATIONS**

* Robot may be wired or wireless .In case of wired robot wire must be slack during its complete run.
* Maximum allowed weight for the wireless bot including the weight of the batteries should be 20Kg at all times during the game play.
* Wireless module will not be provided by the club.
* Maximum allowed weight for the wired bot excluding the weight of the batteries should be 15Kg at all times during the game play.
* **The robot should not be more than 500mm\*500mm\*500mm (length\*breadth\*height) in size at start of every round on ATV arena gameplay**.
* Verdict of the match referee will be final in case of any dispute.

**GENERAL RULES**

* Total of 5 obstacles will be there in WILD Zone.
* 1st and the last obstacle will be same in every match.
* Remaining 3 obstacles may change in every match.
* There will be a pit just before the last obstacle, where the balls can be stored.
* If the ball goes out of the wild zone due to the actions of ATV itself, ATV will start from the start line.
* You are not allowed **to touch your ATV once it** has started a run in arena, unless until told by any of the referee.
* If you touch your ATV in Wild zone at any obstacle, you will have to begin the ATV run again from the start line.

**PENALTY**

* Any kind of tampering with the arena will lead to subtraction of 100 points.

***SOCCER***

**BOT SPECIFICATIONS**

* The robot should not be more than 400mm\*400mm\*300mm (length\*breadth\*height) in size at start of every match gameplay.
* Height of all the bots can be extended up to 400mm after the start of match.
* All soccer bots should not be more than 8kgs in weight.
* Teams have to show and declare ALL of their bots before their first match itself.
* No major changes in the weapon system etc. would be allowed after the above mentioned declaration.

Verdict of the match referee will be final in case of any dispute.

**GENERAL RULES:**

* A maximum of 2 bots can be inside the arena from any team. Other than these 2, a maximum of 1 bot can be kept as substitute.
* All the 3 bots should be wireless.
* Any team must not block the entire goal post, there should be a space of 20 cm space at all times.
* The total playing time between two teams would be of 10 minutes, divided into two rounds of 5 minutes each.
* Robo wars is also allowed simultaneously only in arena (i.e. any bot can fight with any other using any means)
* Goal will be considered only if the ball crosses the goal line.
* Holding the ball is not allowed by any means.
* Bot should not get the ball more than half of the diameter into the bot by any means.
* Any team lifting and carrying the ball, using adhesive techniques to hold the ball or any other unfair means will be disqualified.
* Dead bots are not allowed.
* All bots will be checked at the start of every round that they are moving. In case of anydiscrepancy, referee will decide that the bot is moving or not.
* At start from center bots should be at least 50cm away from the ball in the center.
* The game should not be stopped until the referee blows his whistle
* Allowed:

1. Hitting OR Kicking OR Thrashing OR Flipping the other bot.

2. Completely demolishing any other bot.

* Full part of bot cannot cross the goal line.

**WARNINGS**

1. **Robot moves before blowing the whistle.**

2. Ball lifted by one robot (w/o touching ground) and other team’s bot not touching the ball.

3. Touching (any kind of interruption) the bot w/o asking referee or entering the arena without the permission of referee.

4. If the ball goes more than 7cm inside any of the bots.

5. In case of any discrepancy referee’s decisions would be final.

**Penalty**

1. Second warning is a penalty.

2. During penalty shoot-out, Goal-keeper should not move before the striker touches the ball during an ongoing penalty.

3. Total penalty time is 1 minute to score a goal.

4. Bots playing in the penalty should have played in that match till that time.

5. Only team having the penalty can score the goal in penalty shoot-out.

Note: In case of any disputes, the decision of the organizers would be final and binding to all.

**Weapons Systems**

* Robots can have any kind of cutters, flippers, saws, lifting devices, spinning hammers etc. as weapons.
* Use of pneumatics and hydraulics are allowed.
* Pneumatics Robot can use pressurized non-inflammable gases to actuate pneumatic devices. Maximum allowed outlet nozzle pressure is 8 bars.
* Hydraulics Robot can use non-inflammable liquid to actuate hydraulic devices e.g.cylinders.
* In any case of use of weapons, the total dimension of robot should not increase the given specification during use of weapon.
* Nothing should be thrown out of robot during the game. In case of anything breaking from the robot, it should be completely removed from the robot before continuing with the game.

**Following exceptions and limitations:**

* Liquid projectiles.
* Any kind of inflammable liquid.
* Flame-based weapons.
* Any kind of explosive or intentionally ignited solid or potentially ignitable solid.
* High power magnets or electromagnets.
* Radio jamming, tazers, tesla coils, or any other high-voltage device

**Mobility**

* All robots must have easily visible and controlled mobility in order to compete.
* Flying is not allowed.

**Robot Control Requirement**

* Soccer robots must be radio controlled.
* Tethered control is not allowed.
* All robot radio systems must have a way to change frequencies or coded channels to prevent radio conflicts (i.e. if you are using 4 frequencies you need to have 2 more alternate frequencies readily available).
* If you are using a home built control system, or a control system not covered here, you must first clear it with the coordinators.
* Toy radio systems are allowed at this event.

**POINTS**

* **The team which scores maximum points in the match would be declared as winner of that match.**

ATV

* Every obstacle will have certain amount of points which will be awarded only if the bot crosses that particular obstacle completely.
* You can skip maximum of one obstacleduring a run on ATV arena, but you will lose the point of that particular obstacle.
* NO point will be awarded if the bot is not able to put the ball in the soccer arena.
* **No points will be awarded for partial clearance of any obstacle/obstacles.**
* In all there will be 5 obstacles in the ATV arena which will have a maximum of 30 points.

WILD SOCCER

* 50 points for scoring a goal by the ball brought by your own ATV.
* 30 points for scoring a goal by the ball brought by opponent’s ATV.

**ARENA**

* A maximum of one ball per team is allowed inside the Soccer arena.
* No points will be awarded for putting the ball in the soccer arena if already there is a ball in the arena.
* The soccer field size would be 4m x 2.5m. The goal post will be placed outside the 4m mark.
* Height of goal post will be 0.5m. The ball will be a simple smooth plastic ball with weight in grams (negligible) and diameter 15 cm.
* Balls of both the pools will be of different colors.
* Final ATV arena will be displayed only few days before the event.

**TIME OUT AND BREAK**

* Only one time-out of 2 minutes is allowed in every half with the permission of referee.
* Match will start irrespective of the conditions of bot after the 2 minutes timeout.
* 5 minutes break between two half.
* Match will start irrespective of the conditions of bot after the 5 minutes break.

**IN CASE OF TIE AFTER 1ST TWO ROUNDS, RESULT OF THE MATCH WILL BE DECIDED ON THE FOLLOWING BASIS (ARRANGED IN THE PRIORTY ORDER)**

1. **THERE WILL BE A 3 MINUTE OF NORMAL SOCCER MATCH.(bots which have already played in that match)**
2. **3 PENALTY SHOOTOUT OF 1 MINUTE EACH. .(bots which have already played in that match)**
3. **SUDDEN DEATH OF 2 MINUTES. .(bots which have already played in that match)**
4. **NO OF POINTS SCORED BY ATV.**

**Batteries and Power**

* Each team must have batteries to power their wireless bots.
* The battery will be taken into consideration for the measurement to be made for the machine dimension and the weight.
* The only permitted batteries are ones that cannot spill or spray any of their contents when damaged or inverted.

The maximum allowed potential difference between any two points in the bot is 36 volts.

* Voltage must not exceed 36 volts between any two terminals on the bot.

**Caution**:

* In case of high torque motors a maximum of 12 volts is allowed across its terminal. If you exceed that there are very high chances that motor will burn

Spring, Pinning and Lifting

* Any large springs used for drive or weapon power must have a way of loading and actuating the spring remotely under the robots power.
* Any flywheel or similar kinetic energy storing device must not be spinning or storing energy in anyway unless inside the arena or testing area.

SUGGESTED WIRELESS MODULES

PS2 Wireless Module

* Each team will be provided with two and only two PS2 module for controlling their wireless bot.
* Each team will be provided with a black box 10 minutes prior to the match. Teams should not open it in any case .Any team found doing this will be immediately disqualified.
* From the black box wires will be coming out. Teams will have to connect their motors etc. with this. The black box will contain PS2 wireless module. It will be able to control maximum of 4 motors in both directions.
* There will be tutorial on the PS2 Wireless Module whose timings will be informed later.
* Each team will be tutored on how to use the module before the match.
* Team should check it before using it.

COMPONENTS PROVIDED BY THE CLUB (Default Set)

* 6 high torque motors with compatible wheels.
* Wireless controller at the time of event.
* Each pool has to submit Rs.8000 to the robotics club.

NOTE:

1. Points Tally

* Winning = 4 points.
* Draw = 2 points each pool.
* Loosing = 0 points.

1. In case of equal no. of points. Final judgment will be done on the basis of distance covered by an ATV in a specified time.

**20. Fox Hunt**

*Pool Event, Open-To-All*

*Points: 25*

It saw a huge participation with more than 150 students participating in it after the limitation of maximum 12 teams from each pool of 4 members per team.

***Note : use of mobile phones is prohibited throughout the event and will lead to disqualification***

**STAGE1: INTRA POOL FOXHUNT COMPETITION**

For the first round, fox hunt would be played by teams of the same pool. Out of which only one team will go to the second round.

**Max teams which would be allowed to compete in foxhunt from a single pool**: 12

**Min teams per pool**: 3

*if a pool has less than 3 teams then that pool will be penalized .*

**Max members per team**: 4

**Min members per team**: 2

Maximum time to find “fox” for this round would be 30 minutes. If no team wins, then the winner would be decided according to the direction they have chosen for finding the fox and their final position.

*Then the match would be conducted between the winning teams of same pool and winner in this match would qualify to* ***FINAL*** *round from that pool.*

**STAGE 2 : FINALE**

**How finale would be conducted:**

4 teams would play against each other, one from each pool. The positions would be allotted in the same order in which the teams find the fox.

Maximum time to find “fox” for this round would be 90 minutes.

**Minimum Eligibility Criterion:** Each team must be able to find the fox within 90 mins to be able to qualify for the final positions. If after 90 minutes no team is able to find the fox, then only 1 team would be chosen as winner by giving 10 minutes extra time and no points would be given to other teams. If no one wins after exceeding time, then no points would be given to any team.

**IMPORTANT DETAILS**

**Where to find fox.. ??**

Fox can be anywhere in the campus except for any of the halls.

**For the intra-pool round fox would be stationary.**

**For finalefox would be mobile.**

**21. Morse** Code **Team Challenge**

*Pool Event, Open-To-All*

*Points: 15*

Rules were modified before the competition after the agreement of all the participating students and were well announced to all the participating members. In the second round, initially rule was of giving +10 for the correct answer and 0 for the wrong answer, but the rule was changed in the case of wrong answer. For the wrong answer, -5 points were introduced for the team giving wrong answer and +5 for the team who will answer it correctly.

**Recommendation**: Rules must be thoroughly checked twice or thrice and even then if there is a need to change them before the competition, talk to the General Secretary and all the Takneek Coordinators before modifying them, and if possible also to all club Pool Captains along with participating competition.

***Use of mobile phones is prohibited***

No. of rounds: 2

**ROUND 1**: **PRELIMS**

Any no. of teams in a group of two can come and participate. (Both of them are expected to know

Morse code)

**How it will be conducted**:

One of the team members would be allowed to come in the lecture hall room and the other has to

stay out. We would be giving the first participant Morse code and he has to translate it into ordinary language (alphabets and nos.) and then the second participant would be called and asked to convert it back to Morse code.

The accuracy of conversion of a team would matter in judging. **A team should at least correctly decode 50% words of the given set , to qualify for the second round .**

**Marks of first round will not be ‘carried on’ to the next round.**

In case of tie, team would be decided on the basis of buzzer round.

**ROUND 2**: **Quizo - Morse round**

In this round, 2 participants would be voted by each pool(among all their teams who qualified the first round) to play the second round. Here they would be shown some music video, film, sports or any other important thing like personality and Morse code for something (so as to listen Morse code , there is some interference), some person or anything else would be sent to them. Members of pool who were sent to play , will decode the Morse code and interpret it at the earliest. **There would be 10 marks for each correct guess to the pool.**

If they are unable to guess correctly, the question will be open to the other members of the same pool (who qualified the first found) sitting at the back and not playing.

If they answer it correctly then 5 marks will be awarded to the pool. Otherwise zero marks for that

question.

In total whichever pool has the maximum marks wins the event.

**In case of a tie , there would be 3 questions on the buzzer basis.**

**22. Antenna Design Challenge**

*Team Event, Open-To-All*

*Points: 20*

It was a great experience to see such a genuine efforts put by the teams. Participating students came up with some really good ideas.

**Problem statement:**

You have to design and fabricate an antenna such that it receives the maximum signal transmitted by the transmitter.

The surroundings and constraints are defined below:

1. Transmitting frequency = 146 MHz

2. Transmitter: icom ic-v8 transceiver.

3. Height of transmitter from the ground: 1.5 meter.

4. Height of receiving antenna from the ground: 1.5 meter.

5. Linear distance between transmitter and receiving antenna = 50 meter.

6. Material for antenna must be only Aluminium (provided by the club).

7. Maximum weight of the antenna = 300 grams.

**Rules:**

1. At max 2 teams can participate from each pool.

2. No. of member per team: at max 4.

3. Material and equipment’s will be provided by the club.

4. Using Field Strength Meter the strength of the signal received by your antenna is recorded and the team with highest signal strength will be given 1st position, team with second highest signal strength will be given 2nd position, team with third highest signal strength will be given 3rd position and team with fourth highest signal strength will be given 4th position.

5. Team without the fabrication of the antenna is disqualified.

6. In case of a tie, the team designing antenna with minimum weight would be given a higher

position.

7. If still there is a tie at some position, then average points will be equally distributed to both the teams , e.g. there may be a tie between 1st and 2nd position, then 16 points will be given to both the teams instead of giving 20 and 12.

8. If only three teams fabricate the antenna then only three positions will be declared which

means that a team has to fabricate its antenna design to hold a position. ( MIC )

**The decision of organizers would be final and binding for all participants in all rounds.**

**23-26. RUBIK’S CUBE HOBBY GROUP**

**NOTE:**

* All the events described below are either individual events or team events.

That is, there can be more than one winners from the same pool in a particular event.

**For eg.** If from a particular pool, in a particular individual event, two individuals bag first and third positions respectively, then, for that event, the total points scored by the pool will be (Points of event)\*( 1 + 0.3 ), where given that the third rank secures 30% of total points.

**23. 3X3X3 Speed Solve (Fresher)**

*Team Event, Fresher*

*Points: 20*

This is the regular 3x3x3 speed-solve in which a participant will come and try to solve the cube in minimum time possible. If the timer reaches 5 mins, the solve will be considered as DNF (Did not Finish). All the rules and regulations will be as prescribed by World Cubing Association. [(http://worldcubeassociation.org/regulations/](http://worldcubeassociation.org/regulations/))

This will be an individual event in which there is no limit on participation from any pool.

**24. 3X3X3 Speed Solve (Senior)**

*Team Event, Y12 and above only*

*Points: 15*

This is the regular 3x3x3 speed-solve in which a participant will come and try to solve the cube in minimum time possible. If the timer reaches 2 mins, the solve will be considered as DNF (Did not Finish). All the rules and regulations will be as prescribed by World Cubing Association. [(http://worldcubeassociation.org/regulations/](http://worldcubeassociation.org/regulations/))

This will be an individual event in which there is no limit on participation from any pool.

**25. Medley Relay**

*Team Event, Open-To-All*

*Points: 20*

In this event, a team of 5 participants will solve a 2x2x2, a 3x3x3, a 4x4x4, a 3x3x3(one handed) cube and a pyraminx one after the other. Total time of all 5 solves will be counted. If the timer reaches 10 mins, the solve will be considered as DNF (Did not Finish).

Maximum 2 teams will be allowed from a single pool. **3x3x3 and 2x2x2** **should be solved by Y13 only and the rest should be solved by Y12 and above only.**

**26. Team BLD**

*Team Event, Open-To-All*

*Points: 15*

In this event, a team of 2 participants will solve a 3x3x3 cube such that the person solving the cube will be blindfolded during the solve time as well as the inspection time and will not speak anything. The other person will help the solver and can say anything including algorithms, cases or even steps but should not touch the cube or the timer in any way. If the timer reaches 5 mins, the solve will be considered as DNF (Did not Finish).

This will be a team event in which there is no limit on participation from any pool.

**Judging:**

1. Only the resting state of a puzzle is considered, when the timer has stopped.

2. Puzzles may be in any orientation at the end of the solve.

3. All pieces of a puzzle must be fully attached to the puzzle, and in their required positions.

4. A puzzle is solved when all face colours are reconstructed and all the parts are aliged within certain limits.

5. For each two adjacent parts (for example two parallel adjacent slices of a cube) of the puzzle that are misaligned more than the limit described in Point 9, these two parts are

considered to need one move to be solved (Half Turn Metric).

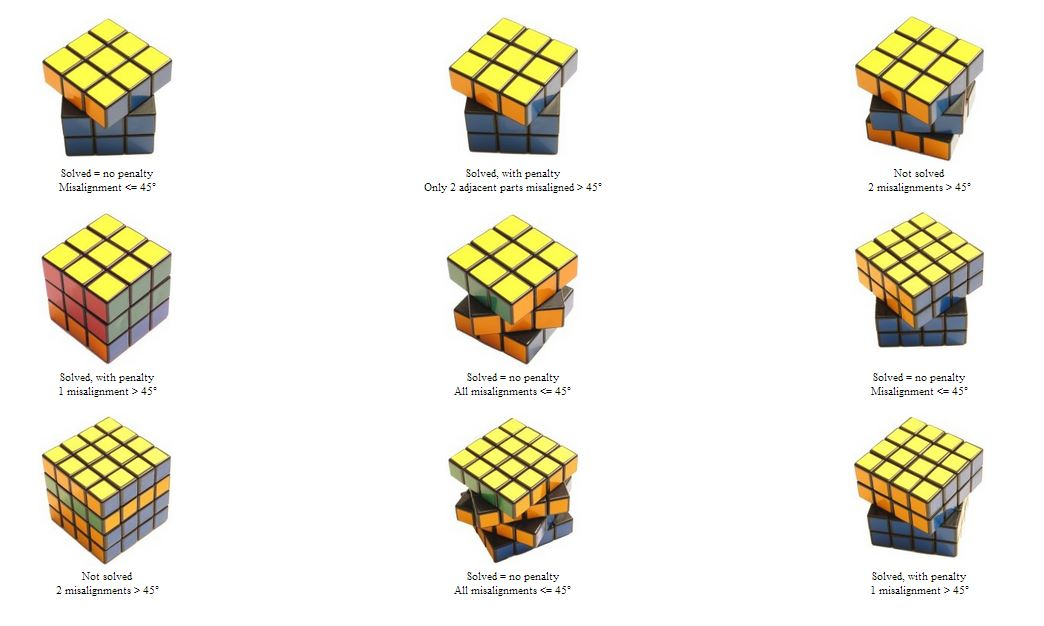
6. If no move is needed to bring the puzzle to solved state, the puzzle is considered solved without a penalty.

7. If one move is needed, the puzzle is considered solved with a penalty of 2 seconds.

8. If more than one move is needed, the solve is ruled DNF.

9. Limits of misalignment for puzzles:

Examples:



For pyraminx, the limit of misalignment is 60 degrees.

10. Other puzzles are solved according to the solved state as defined in the generally accepted goal of the puzzle, with the regulations of the cube solved state applied when applicable.

**27. Bridge Design Competition**

*Team Event, Open-To-All*

*Points: 30*

**PROBLEM STATEMENT**

Design a **truss bridge** using Popsicle sticks (ice cream sticks) satisfying the stated constraints.

**1. Event Structure**

 Round 1: Teams should submit an abstract on or before 27th August. The abstract will be having the one sided truss design of the model on an A3 sheet.

 Round 2: The structures made will be tested on the day of the event.

**2. Materials**

 Use Popsicle sticks provided by the club. Sticks can have the following maximum dimensions:

 Length = 11 cm

 Breadth = 1.2 cm

 Width = 0.2 cm

 Sticks can be altered physically by cutting or notching at any angle.

 Only Fevicol can be used as adhesive, use of other adhesives may lead to disqualifications.

* Use of threads is not allowed.

**3. Overall Dimensions**

* The Popsicle Bridge dimensions should be within the specified limits of:

 Length = 56-60 cm

 Width = 10-11 cm

 Height = 12-16 cm

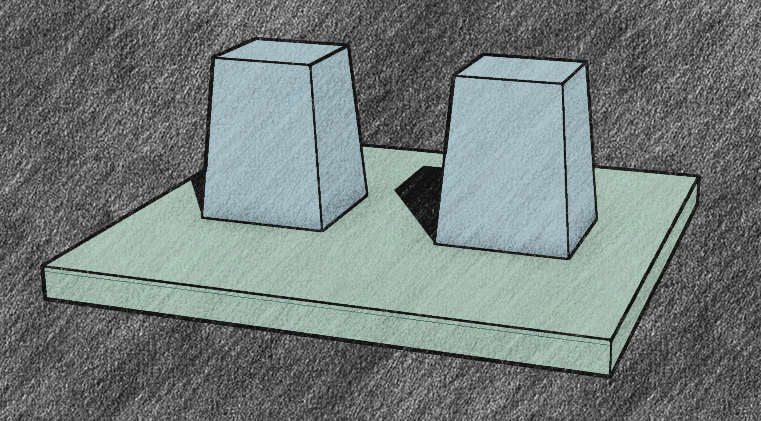
**4. Weight**

* The bridge must weigh 250 grams or less.

**5. Configuration of Models**

* **Clear distance:** An 8cm high by 4cm wide clearance must be provided along the entire length of the bridge.

**6. Platform specifications**



*Fig 2: 3D View*

1. **Testing the bridge**

* The load will be applied through a hook that connects a steel platform that will be laid upon the span of the bridge.
* The platform will be stretched from each ends and will be connected through the hooks which will be continuously increased through the manual jack.
* The platform will be same for every team and will be placed at the middle of the structure.
* The bridge model will be loaded till failure. The maximum deflection at the point of yielding and the load at that moment will be used to evaluate the structure.
* If it happens that the structure reaches the threshold deflection of 1.0 cms then the jack will be stopped and the evaluation will be made on the same load. At this case the structure will not be tested further.



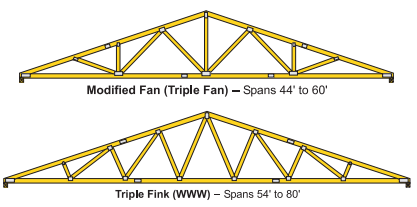
*Fig 3. Loading by hook*

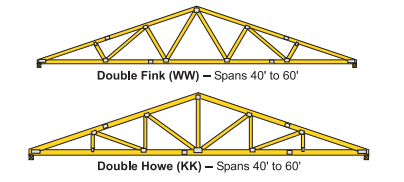
1. **Team Size:** 3 – 5 students per team.
2. **Open event:** Any number of teams can participate in the event from different pools but a minimum of two structures from every pool is must.
3. **Construction:** Sticks can be stacked together length‑wise to form stronger structural elements or to make long span elements. The overlapping between two sticks should be more than 40%. Maximum number of sticks that can stack together is three.



*Fig4. Overlapping of sticks*

1. **Examples of kinds of trusses:**

**

**

*Fig5. Types of trusses*

1. **J u d g i n g a n d S c o r i n g :**

First the structure will be reviewed to check if it violates any rules mentioned above.

The scoring of the structure will be based on performance as well as aesthetics:

* The bridge will be scored on how well the material has been used to support the load. The efficiency will be calculated as the ratio of ultimate load capacity and the bridge weight. **In engineering, the best solution may not always be the biggest or strongest bridge.**
* The bridge will also be scored on aesthetics. The judges will judge the bridge based on the detail to connections and members, the uniqueness of the design and its overall look.
* The deflection of the bridge at yielding will be noted. If the deflection increases more than 10 mm, then the load at that deflection will be taken as the ultimate load.
* Scoring Criteria
* Deflection at yield (d) = 20%
* Efficiency (e) = 50%
* Aesthetics (a) = 30%

Total Score (S) = d + e + a

Violating any of the conditions mentioned underneath, penalty will be imposed according to the judges and may lead to disqualification:

* Weight exceeds the limit (**Penalty of 20% of the total score**)
* Dimensional specifications are not met (**Penalty of 10% of the total score**)
* Use of material, except the ones stated in rules **(Penalty of 50% of the total score or can lead to disqualification as decided by the judges**)

In case of any discrepancies, the decision taken by the judges and the council will be the final verdict.

**28. SuperSapiens**

*Team Event, Open-To-All*

*Points: 15*

Think could there really be a Peter Parker alter ego for a Spiderman? Put on your thinking caps as BRaIN brings to you a chance to fill life in your favourite superhero.

ELIGIBILITY: Open to All.

RULES:

1.This is an individual event. Any number of entries will be accepted from each pool.

2.Students have to submit a creative and innovative article on the given topic.

3.Plagiarism of any kind will result in rejection from the competition.

TOPIC: “Your favourite superhero -biologically possible?

Basically, you must write an explanation on how you think your superhero could be modeled on a normal Homo sapien (just like you) BIOLOGICALLY. Your ideas must not be based on fantastical themes (like Hal Jordan getting a power ring from aliens), but on plausible concepts of biology.

Format

* Each participant will have to submit an article on his/her idea(2000 words max).
* Students have to submit a soft copy of the article by mailing it to brainclubiitk@gmail.com with subject "Takneek Article\_Your Name\_Pool Name".
* The deadline to submit the article is 23:59 Thursday,29th Aug

JUDGING CRITERIA:

Judging will be done by a panel of PG/PhD students.

Your article will be judged on the following points:

* correct biological explanation of the powers.Your superhero can have at most 3 super-powers.(You will be graded for the explanation of the first 3 powers you explain in your article) – 60%
* feasible biological origin of the powers. – 10%
* citation of any existing biological system or theories that can support your explanations.(REFERENCES fetch you extra points) – 10%
* innovation. – 20%

In case of any dispute, the decision taken by the BRaIN Team will be FINAL.

**29. Crime Run**

*Pool Event, Freshers*

*Points: 25*

Problem Statement: You arrive at the crime scene enacting a group of professional detectives. You are armed with tools of crime-busting (will be provided) and your razor-sharp intellect (will NOT be provided).

The murderer, like all of his kind, oversees the possibility of evidence left at the crime site. Your job as a team of experts is to piece together the puzzle by working on the clues you obtain. You work on cryptic messages left for you, and physical evidence found on site. You would employ a number of chemical and forensic tests to work out your way!

Eligibility & Team Structure: From every pool, ONE team consisting of FOUR members would be allowed to participate in this event.(**Freshers Only**)

Judging Criteria:

15 points are awarded for every successful test result (5 tests in all)

10 points are awarded for a successful result for the bonus side quest (1 test)

10 points are awarded for final successful identification of the criminal. (Suspect profiles will be provided)

5 points are awarded to the team who finishes the event in the shortest time.

Tie-breaker:

The prime criteria for deciding the winner in case of ties would be on the basis of shortest time – the team who finishes faster wins.

In case of a tie in this time criteria, bonus questions would be posed to the teams until one emerges victorious.

Special rules:

- Use of internet during the event is prohibited for all members in the working team.

- Once a result is obtained for a test, the test cannot be conducted again.

**30. SnT Blogging**

*Pool Event, Open-To-All*

*Points: 20*

There will be two entries per pool which will be posted on the SnT Blog, one on each of the following topics.

**1. Takneek’s experience sharing**

Sharing the experience of Takneek in IIT. A pool event open for Y12 and Y13 Junta.

**Rules and regulations:**

* Only one entry per pool will be accepted. The entry will be counted only if there are 500 likes on each entry before 1 p.m., Sunday, 1st September.
* Deadline for article submission will be 5 p.m., Saturday, 31th August. The article must be submitted to [blog.sntiitk@gmail.com](mailto:blog.sntiitk@gmail.com) with the subject “Takneek Experience Sharing\_<Pool Name>”.
* Word limit: min 750 words.

**Judging criteria:**

The article will be judged on the basis of:

Content – 35%

Literary skills – 25%

Storyline – 25%

Humour – 15%

Negative marks for grammatical errors or any abusive language used.

**Note: The decision of judges will be final and no further debate will be allowed.**

**2. Theme based article writing**

One theme will be given during the launch of website. The event is open for both Y12 and Y13 Junta.   
**Theme** - Future of IITK Sci-Tech council: an illustrated guide through the next 10 years.

**Rules and regulations:**

* Deadline for article submission will be 7 p.m., Saturday, 29th August. The article must be submitted to [blog.sntiitk@gmail.com](mailto:blog.sntiitk@gmail.com) with the subject “Theme Based Article Writing\_<Pool Name>”.
* Only one entry per pool will be accepted. The entry will be counted only if there are 1000 likes on each entry before Thursday midnight, 31st August.
* Word limit: min 750 words

**Judging criteria:**

The article will be judged on the basis of:

Content – 30%

Literary skills – 30%

Illustrations – 20%

Innovation – 20%

Negative marks for grammatical errors or any abusive language used.

**Note: The decision of judges will be** **final and no further debate will be allowed.**

**Note: The weightage of each part is 50% - 50%**

**31. Science Quiz**

*Team Event, Open-To-All*

*Points: 20*

General Rules:

1. This will be an on the spot event. Prior registration is not required.

2. Questions will be based on Mathematics and all the Sciences (Physics, Chemistry, Biology and related fields).

3. Each team must consist of 3 people each having at least one fresher.

4. There is no restriction on the number of teams giving the first round. This will be a

sheet based round.

5. Atmost 6 teams will qualify for the second round. This round will be via the

traditional ppt format.

6. In case of any dispute, the decision of the coordinators will be final and absolute.

**32. Science Fiction**

*Team Event, Open-To-All*

*Points: 20*

**Rules and Regulations**

* This is an individual event (1 person per team) with a maximum of 4 entries per pool and maximum of 2 entries from an individual.
* The word limit is 1200-1500 words.
* Entries must be ORIGINAL, in English and **should be based on one of the themes and nothing else**. The list of the themes would be provided at a later stage. The story needs to evolve around the central theme.
* Plagiarism of any sort will result into disqualification of the entry.
* Give a suitable Title to your work.
* At the end of each article, we have an 'About the author' section. Please write in short about yourself (Name, Email ID, Department, Program, technical/research interests if any). Also mention your pool name.
* Submission should be in .doc/.docx format. The font type and size should be Arial and 12 respectively.
* All entries can be directly mailed to iitktakneek@gmail.com with subject “Science\_Fiction\_PoolName\_Roll.Number” by 29nd August 2013 23:59 hrs.
* Permission is granted for Science and Technology Council and NERD to reproduce your entry.

The **judging criteria** will be as follows:

Suitable title : 10%

Originality of ideas : 20%

Technical concept behind the story : 20%

Art of story-telling, presentation and expression : 50%

**33. Giant Particle Chess**

*Team Event, Open-To-All*

*Points: 20*

## Before the game:

There can be only one team of 16 members from each pool, with a captain leading the side. The captain is involved in:

1. Representing the team as a whole during probabilistic events like the toss.

2. Issuing instructions to team members and deciding the next move in the game.

The two sides are called “Matter” and “Antimatter”. The Matter side plays first.

The 16 members of each team are randomly allotted particles (chess pieces) and initial positions to participate in the game through a selection of chits.

An impartial referee will be overseeing the match. Disputes, if any, will be addressed to him and his word will be the final.

## During the game:

Most rules from chess apply as they are with the following changes in terminology:

1. The chess board itself is the all-pervading Higgs field. Everything you do in the match will be encompassed by this mysterious field.

2. The co-ordinates are replaced by ordered pairs of numbers. For example, a6 becomes (1,6) and g2 becomes (7,2). The captains are to specify each move aloud by saying “<Particle> to <co-ordinates>”, for example, “Black King to e5” is replaced by “Antiproton to (5,5)”. Remember that if you are in the Antimatter team, you must use the appropriate terminology for the antiparticle, except for one of them, where it doesn't make a difference. (Which one?)

3. Capturing a piece will be termed “Annihilation” of matter and antimatter.

4. Castling will be termed “measurement of the entangled proton- K+ system.” For example, “I would like to measure my entangled system of His Revered Majesty the Proton and the K+ meson at <position>”. Scientific humour in announcing moves is appreciated.

5. Terminology for chessmen:

a. The King is the Proton- stable, massive and sluggish, content to sit in His place.

b. The Queen is now the Electron- Highly mobile and energetic, can interact whenever needed.

c. The Rook is the K+ meson.

d. The Bishop is the WIMP! No, we do not mean it is a cowardly piece, we just mean to say that it is one of the Weakly Interacting Massive Particles that could be a candidate for dark matter. Weakly interacting because it can go right through the other pieces.

f. The Pawns are the neutrinos, the little ones. Can change flavour when in their mass eigenstates after reaching the other end of the Higgs field.

## Additional rules :

During the course of the game, at the all odd prime turns the referee will roll a die. A turns consists of a move by both matter and anti matter. Whenever the prime is of the form 4k+1, then the die will be rolled at the start of matters move, and if it is of the form 4k-1 then the die will be rolled at the start of anti-matters turn. Since 2 is the “oddest” of the primes, the die will be rolled at the start of both matter and anti matters turn at the 2nd move.

If a “1” comes up on the die, then the referee will introduce a particle-antiparticle pair of neutrinos (pair production), to remain for 5 moves, after which they will again annihilate with their respective antiparticles. If, by then, one of the new neutrinos has already been annihilated, then the 5 move rule does not apply to the other neutrino, i.e. He stayed until killed.

Also, whenever a particle of one type kills any other particle of the same type, then they annihilate and both are removed from the board. This does not apply to neutrinos because of they are neutral.

Electrons can scatter off particles of the same nature, i.e electrons (anti-electrons) can be reflected off other matter(antimatter) particles. They cannot scatter off neutrinos. The laws of reflection will apply. The reflected electron can go on to annihilate another in the same move. Multiple reflections are allowed.

Entanglement: A team may choose to entangle any two of its particles for the cost of a move. Entangled particles move simultaneously, and follow the moves of either of the two particles. The captain will choose which of the two particles they will simultaneously move like, and this choice will remain final through the duration of the entanglement. The entanglement will last for a duration of 5 turns. Moves are only allowed if they are valid for both pieces.

## Time-limit:

Each team given 15 min to complete their moves. Whoever finishes their time first lose. In case of any discrepancy, the decision of Co-ordinators will be final.

**34. Integration Bee**

*Team Event, Open-To-All*

*Points: 15*

30 minutes.100 integrals. Solve as many as you can!

On the spot team event.

Maximum 2 participants per team

Minimum 3 teams per pool

If less than 3 teams then pool disqualifies.

Judging Criteria - The event will consist of 100 integration problems of varying difficulty, each having a weightage of 1 point. No partial points will be given, the full point is only awarded if the final answer is correct. For indefinite integrals, the final answer will be a function; full points will be

awarded if and only if the provided function differentiates to the integrand. For definite integrals and improper integrals, the final answer will either be a number (real or complex) or infinity (positive or negative); full points will be awarded if and only if an exact answer in terms of known constants (the full list of allowed constants will be given with the question paper; it will include numbers like pi, e and square root of 2). Numerical answers will not be given any points unless they are exact. (Thus, if the actual answer is e, the answer 2.718 will be given no points, but if the answer is ⅗, full points will be awarded for the answer 0.6.)

In case of any discrepancy, the decision of Coordinators will be final.

**35. Scientoon**

*Team Event, Open To All*

*Points: 15*

**Rules and Regulations**

* This is an individual event (1 person per team) with a maximum of 4 entries per pool and maximum of 2 entries from an individual.
* Entries must be ORIGINAL.
* Any sort of plagiarism will result into disqualification of the entry.
* A scientoon is humorous as well as informative in nature.
* A scientoon consists of a cartoon image.
* Below the cartoon image, should be a dialogue (which has to make the whole thing humorous).
* On the left, there should be scientific information, which is the theme of the scientoon.
* Many instances of scientoon can be found at [**www.scientoon.com**](http://www.scientoon.com)
* Below the scientoon. Please write your Name, Department, Email ID and also mention your pool name.
* The Scientoon can be digital or it can be hand-made. Hand-made Scientoon will get bonus points.
* All digital entries can be directly mailed to iitktakneek@gmail.com with subject “Scientoon\_PoolName\_Roll.Number” by 29nd August 2013 23:59 hrs.
* All hand-made scientoons has to be scanned or a photo can be mailed to iitktakneek@gmail.com with subject “Scientoon\_PoolName\_Roll.Number” by 29nd August 2013 23:59 hrs. If you wish to submit the hardcopy, submit it to one of the Takneek Overall Coordinators before the deadline.
* Permission is granted for Science and Technology Council and NERD to reproduce your entry.

The **judging criteria** will be as follows:

Art : 50%

Humor corresponding to Technical Correlation : 50%

Bonus: Hand Drawn (using crayons, color pencils, water colors, etc.) +10%

**36. Science Poetry**

*Team Event, Open-To-All*

*Points: 15*

**Rules and Regulations**

* This is an individual event (1 person per team) with a maximum of 4 entries per pool and maximum of 2 entries from an individual.
* Entries must be ORIGINAL, in English and can be of any poetic forms (eg: Cinquain, Couplet, Haiku, Sonnet, Limerick, Ballad. Refer for complete list: <http://en.wikipedia.org/wiki/Category:Poetic_form>)
* Any plagiarism of any sort will result into disqualification of the entry.
* **Your poem must contain certain keywords which will be revealed at a later stage.**
* Your poem must have something to do with science, mathematics, economics, engineering or technology (e.g.“The Square Root of Three” by David Feinberg ; a science, engineering or technical idea; or a scientific issue that is important in our lives!).
* Give a suitable title to your poem.
* At the end of each poem, there should be an 'About the Poet' section. Please write in short about yourself (Name, Department, Email ID, Program and Technical and Research interests if any). Also mention your pool name.
* Submission should be in .doc/.docx format. The font type and size should be Arial and 12 respectively.
* All entries can be directly mailed to iitktakneek@gmail.com with subject: “Science\_Poetry\_PoolName\_Roll.Number” by 29nd August 2013 23:59 hrs.
* Permission is granted for Science and Technology Council and NERD to reproduce your entry.
* Your poem should have at least 8 lines.

The **judging criteria** will be as follows:

Suitable title : 10%

Originality of ideas : 20%

Concept : 20%

Art of poetry, presentation, expression and best use of the chosen poetic form : 50%

**37. What If**

*Team Event, Open-To-All*

*Points: 10*

Participants are required to give creative but scientifically sound answers to atypical “what if..” questions. There is no upper limit to the length of the answers. Minimum length 300 words. Points will be given for creativity, scientific accuracy and apparent absurdity. For a model of such questions

and their solutions look up what-if.xkcd.com. Bonus points if the scenario ends in an apocalypse. Extra bonus points if it ends in a zombie apocalypse.

This is Open-to-all Individual On-line Event. Minimum 2 entries per pool

**Deadline**- Thursday, 29th August, 11:59 p.m.

**Send in entries to** [seek.iitk@gmail.com](mailto:seek.iitk@gmail.com) **with subject “What-if\_pool name\_RollNo.”**

**Entries should be in text or pdf format and should mention the scenario chosen clearly.**

**Format:**  Judging Criteria:

Creativity - 50%

Scientific Accuracy - 25%

Absurdity - 25%

The bonus points for apocalyptic ends will be up to 20% of the total points, depending on the originality of the apocalypse. **Plagiarism disqualifies!**

In case of any discrepancy, the decision of Coordinators will be final.

**38. Science Conference**

*Pool Event, Open-To-All*

*Points: 30*

The event aims at popularising the ongoing developments in the field of science and providing a platform for creative discussion on future possibilities and prospects. The idea is to promote knowledge sharing and at the same time compile the personal views of various people based on their assessment of what the future holds for us. The conference will be composed of presentation from each pool with two speakers each who will share their opinion on the theme followed by an extensive question and answer session to test their preparation as well.

**Theme: “Evolution of Science in the next 20 years”**

**Format of the event and Rules & Regulations:**

* This is a pool event. The topic will be revealed during the launch of the site. Each pool has to pick one topic.
* Only two speakers from each pool are allowed. One of the speaker has to be from Y13 and the other from Y12.
* The speakers will be presenting (with a PowerPoint presentation) their research on that topic in front of a judging panel and the junta present.
* Every pool will get 8 minutes to present their work.
* There will be a short discussion session (about 1-2 minutes) after the presentation in which other participants can comment on or add to the topic presented.
* There are marks for active participation from Junta also. That is each pool will be asking at least two question for each presentation when the chits are passed during the presentation. If not, there will be negative marks for that pool.
* Then question answer round will follow. Questions will be asked by judges and from the chits which were passed.

**Judging Criteria:**

* Presentations will be judged subjectively by the Judges on the basis of content, coordination, understanding of the topic etc.
* Marks will be given on the basis of their presentation and their response to the questions asked by judging panel comprising of Professors.
* If the speakers are not able to answer the questions raised, marks will be deducted for each question unanswered.

**Negative Markings:**

Marks for the pool will be deducted, if:

* If any member of any pool tries to interrupt in between of any presentation
* If the speakers use any abusive language or are not able to answer the question raised
* If there are not many questions(at least two from each pool while passing the chits) asked from the junta
* If the presentation exceeds the given time limit (8 min)

**Note: Additional Rules will be released at the time of Event.**

**39. Nutcracker**

*Team Event, Open-To-All*

*Points: 20*

General Rules:

1. This will be an individual event. There is no restriction on the number of entires per pool.

2. Problems will be uploaded on the Takneek website. There will one physics and one mathematics problem uploaded on each of the first three days of Takneek.

3. Solutions to the problems must be submitted in a pdf format and must be submitted before the given deadline.

4. The most innovative/elegant solution (and in case two are equally good, the first one to reach us) will be graded higher.

5. In case of any dispute, the decision of the coordinators will be final and absolute.

**40. Green Poster Competition**

*Pool Event, Open-To-All*

*Points: 15*

This is a **pool** event. All pool captains need to submit a digital poster on the given theme to iitktakneek@gmail.com by 29th August 2013 23:59 hrs.

**Theme:**

Futuristic Green Technology

The poster can include anything related to green technology of the future. It can even be a collage of different green technologies. It can be a concept which you envision. You are free to whack your brains and create any green technology of the future..

To know more about Green Technology refer to http://en.wikipedia.org/wiki/Environmental\_technology

**Note** : You can add captions on the poster. This poster is not futuristic, it is just about green technology and your theme is “Futuristic Green Technology” - emphasise on the futuristic part.

**Rules:**

Poster must be of A3 size. Direct copy of an image or poster from the internet is not allowed. If caught you will be disqualified. All image manipulation softwares are allowed. Entries must incorporate a brief explanation of the poster’s content.

All 4 posters will be uploaded on the SnT Facebook page on 28th August. The poster must have 750 FB likes in order to be eligible for judging. The likes would be counted upto 1st September 2013 11:59 a.m.

The **judging criteria** will be as follows:

Concept behind the poster : 50%

Aesthetics(How good it looks) : 30%

Explanation of the content : 20%

Bonus for Creativity : +15%

**41. Wacky Marketing**

*Pool Event, Open To All*

*Points: 30*

**OVERVIEW**

The competition aims to test your marketing skills and creativity to come up with an strategy to market the unmarketable.

**STRUCTURE**

Each pool will be given a product chosen randomly from a pool of products, and will have to come up with a document for promotional marketing strategy for that product.

The document will be complimented by a video advertisement implementing the essence of the strategy.

**Marketing Plan:**

Marketing Plan should contain but need not be limited to:

-Product introduction and analysis

-Market analysis

-Insights

-Marketing Strategy: Placement and Promotion

**Advertisement:**

A video advertisement should be made on the basis of the marketing strategy generated. This will then be uploaded on the E-Cell page for voting.

Submit the marketing plan document in form of PDF and Advertisement video of length 1:30 minute max. (Resolution: 640x480 to 1136x768) . The PDF has to be submitted online to [ecell.takneek@gmail.com](mailto:ecell.takneek@gmail.com) by 30th August 11:59 PM. The video can be submitted manually to any of the event coordinators before the deadline.

**JUDGING**

In order for the marketing plan to be eligible for evaluation, the corresponding advertisement must garner atleast 1000 likes by the end of Day 3.

Marketing Plan - 80 points

Analysis of product - 40 points

Current Market and product analysis - 20 points

Additional notes, insights and inferences (value addition) - 20 points

Marketing Strategy - 40 points

Innovativeness/Standing out - 20 points

Level of detail - 20 points

Quality on Advertisement - 20 points

**42. TechnoPro**

*Team Event, Open-To-All*

*Points: 20*

E-Cell in association with Takneek presents you Technopro to give you a taste of Entrepreneurship.

**Problem Statement**

The concept of this event is to thoroughly brainstorm on the innovation that can be applied to the already given problem statements of Takneek for various events and come up with a business plan to commercialize it. The solutions of various problem statements of other events of Takneek have huge scope for modification and implementation to the real world. Students have to convert the problem statements of other Takneek events into a business plan with added innovations and submit it.

**Judging Criteria:**

1) Innovation has maximum points. So put on your thinking caps!

2) Presentation of the business plan is vital for the success of any venture. Substantial points have been allotted for presentation as well.

3) The decision of the judging panel shall be final and binding.

Rules and Regulations

1. Each pool has to convert any number of problem statements of Takneek into Business Plans.  
2. Each pool can send any number of B -Plans. Top 8 entries would be selected to give presentation to the judges.  
3. There is no restriction on the number of participating members i.e. even the whole pool can participate but presentation will before judges will be given by maximum of 4.  
4. Entries need to be submitted to <[ecell.takneek@gmail.com](mailto:ecell.takneek@gmail.com)> by 30th August, 10:00 PM.  
5. Presentations will take place on 3rd or 4th day of Takneek. Presentation should be 7 min long and it will be followed by 5 min Q/A session.  
6. Venue, time and date of presentation will be intimated later.  
  
Note: Business Plan would only be accepted if it’s in the format given by the organizing team.  
It is not a pool event. So, all the points can be won by the same pool.

**43. SnT Quiz**

*Pool Event, Open-To-All*

*Points: 50*

This event aspires to check the horizon of knowledge of campus techizens in fields mentioned below. With that purview in mind, Takneek presents you the SnT quiz! There will be 4 quizzes under this event

a. BRaIN Quiz

b. HAM Quiz

c. Business Quiz

d. Astronomy Quiz

Each quiz would be of 20 points. The teams coming 1st , 2nd , 3rd and 4th in the quizzes would be awarded 20, 12, 6, 2 respectively. The points scored by the teams of a pool will be added to get the final pool positions for the entire SnT Quiz Event.

**BRaIN Quiz**.

Are you fascinated by how your brain works? Intrigued by the stupendous variety of life generated by the simple process of natural selection? Want to show off your knowledge and understanding of the living world. This Takneek take part in the BRaIN-Quiz and plunge yourself into the world of biology.

1) The quiz will consist of two rounds – Prelims (100 points) and Mains (500).

2) Maximum members per team: 3 (4th Yearites cannot be part of a Team).

3) No restriction on number of teams per pool for prelims.

4) For the prelims, a number of questions will be displayed the answers to which will have to be

answered on a piece of paper. Only one team from each pool will enter the mains.

5) Use of internet during the quiz is strictly prohibited.

6) The format for the Mains will be declared on the spot.

7) For the final round there will be questions to the audience.(Points earned by audience go to their team)

20% carried over from prelims.

10% for audience round.

70% Mains.

8) In case of a tie there will be a set of questions asked only to the teams having a tie(until the tie breaks). NO CREDITS WILL BE GIVEN FOR TIE BREAKER ROUND.

8) Discretion of the judges/quiz-master is final; the quiz-master will be from BRaIN team only

**Jugnu/Satellite and HAM Quiz:**

**All the questions will be multiple choices**.

The questions would be related to HAM license examination, satellite communication,

basic electronics and general technical awareness.

If s there is a tie, then average of the points would be given. For example, if there is a tie for 1st

and 2nd position then 16 points will be given to both the teams instead of giving 20 and 12.

**Time:** 1 hour.

\*The decision of organizers would be final and binding for all participants in all rounds. \*

**Business Quiz**

This will test a team's understanding of the business- Financial and the very generic economic aspects.

• There will be two rounds in the event-prelims and mains.

• There is no restriction on the number of teams in the preliminary round.

•From the preliminary round, top 8 teams will move to the main round. The scores of the team in the prelims will not have any weightage in deciding the final winner

• A team can have maximum 3 members.

• Teams having the highest scores in the main round will be the winners .Team scores of a pool will not be added ( 2 teams of the same pool can thus come in 1st and 2nd ).

• The quiz master's decision will be final and binding.

• If a team of a certain pool is found to help the other, both the teams will be immediately disqualified.

**Astronomy Quiz General Rules**

1. The Event will be conducted in two rounds Prelims and finals.

2. Teams of three or less can participate in the Prelims, and there is no limit on the number of teams from each pool. Registration is on the spot.

3. After the prelims, 6 teams will qualify for the finals.

4. The points of prelims will NOT be carried forward to the finals.

5. This event will be a 'Team Event' i.e. the points will be awarded to teams irrespective of the pool to which the team belong. There is no restriction on the number of participating teams per pool.

6. Cheating in any form will not be tolerated and the team will be disqualified in such cases. Especially use of mobile phones will not be allowed in the room. The coordinators and the quizmasters will reserve the right to disqualify the teams in this scenario.

7. The Coordinators and the Quizmasters’ decision will be final in deciding the right answers.

Prelims:

The Prelims will consist of a total of 20 questions. Starred questions will be used to resolve tie-breakers.

Finals:

The final will have four rounds. The details of the rounds will be revealed during the event.

Judging Criteria:

The final decision on answer of any question will be taken by the Coordinators and the Quiz Masters.

**44. Jugaad**

*Pool Event, Open-To-All*

*Points: 50*

**OVERVIEW**

In order to win, each pool must solve problems of hostel dwellers of another pool.

**STRUCTURE**

1. Every pool will submit 1 problem faced in the IIT Kanpur along with a possible technological solution and design of the prototype.

2. There would be a lucky draw and one problem statement would be selected. All the pools would have to submit a prototype on the selected problem statement.  
3. A potential technological solution (with design of prototype) to all the other 3 problem statement along with the financial estimates of the suggested solution should be made.

a) Solutions will be judged in terms of feasibility and financial comparisons, as well as novelty and originality.

b) Any valid solution and prototype must have an associated financial analysis , failing which it will not be considered for evaluation.

Example: http://ecopreneurist.com/2011/09/14/an-innovative-and-cheap-solar-light-bulb-lights-homes-in-manila/

**TIMELINE/EVENT STRUCTURE:**

26-08-13: Every pool must submit the following data:

1) A problem faced at IIT Kanpur.

2) A description of the problem and background information

The submissions will have to be done manually to event coordinators at 10:00 PM after which there would be a lucky draw in the presence of representatives from each pools ( preferably pool captains ) to select the problem to be prototyped.

**CONDITIONS:**

a) All the solutions combined must be within the budget of INR 5000.

b) Financial estimates must cover in detail all costs in terms of liquid cash spent for purchase, labour rate, transportation cost etc. However to ease the budget constraint, the labour cost will not be considered while calculating budget constraint, but will contribute while comparing finances. (do mention any approximations made for rates etc. standard labour cost for man-hours spent and transportation costs will be market rates and labour cost as available from data acknowledged by IIT Kanpur.)

c) Any data/estimate/fact used in arriving at the solution must be made available as a part of the background information.The solution will not be made available outside the organising team. However, during evaluation of the solution, all the data must be able to be verified from the description, failing which will lead to penalty for every such instance encountered, upto a maximum of 5 discrepancies after which they will be penalised for 20% of their final marks.

A team can access data provided by another team at the cost of losing 10% of points they finally obtain for that problem.

**Prototype**

A lucky draw will be made in presence of all pool captains to select one problem statement out of the four. A prototype of the solution must be proposed and developed by each pool for this problem statement. For the other three, each pool must submit a detailed document of solution. The solution must have details of the potential prototype which can be used to build it.

**Day 2,3,4:** Every pool must submit one solution (with proper design specifications) to each problem statement. Each problem statement is independent and its evaluation will not take into account the pool’s performance on other problem statements. The entries need not be sent together, but can be sent as and when they are completed. However, once sent, an entry cannot be revised later.

For every problem, the solutions of all the four pools will be evaluated and ranked 1st to 4th.

*For the entry chosen by lucky draw, Prototype is to be submitted by Day 4, 11:59 AM.*

**Judging:**

Out of 100, evaluation will be done in the following manner:

A pool without prototype (might not have been finished) will be disqualified automatically.

**Question(Q): 10**

-Relevance of question: 5pts

-Average points obtained by all solutions: 5pts

**Prototype(P): 36 pts**

-10pts innovation

-16pts effective working of the prototype,the availability of raw materials used, the ability to be reproduced on a large level without damaging the environment, cost effectiveness etc.  
 -10pts format, details and authenticity of the cost estimation done in the document submitted.

**Other Solutions(S1,S2,S3): 18 pts each**-10pts innovation and design

- 8pts format, details and authenticity of the cost estimation done in the document submitted, ie degree of detail and research.

Hence the final score out of 100 will be calculated as:

Q + P + S1 +S2 +S3

The pools will be ranked on the basis of this final score

**Tie-breaker:**

In case of a tie between two teams,

Pool with more points on prototype will win

In case of tie after the above,

Pool with more points for their Question will win

In case of tie after above two,

Points will be split evenly between the two pools.

**45. Rube Goldberg**

*Pool Event, Open-To-All*

*Points: 50*

**PROBLEM STATEMENT:**

To pour water in a glass and cover the glass with a lid after filling it.

(Final step should be to cover the glass with a lid)

**RULES & REGULATIONS:**

* The machine must complete the task as described in the challenge. If not, points kept for the same would be deducted.
* The machine must be no larger than 12 ft. x 12 ft. x 10 ft. The support from only one wall is allowed (you can use windows if present on that wall) and the top ceiling is not allowed of any form.
* The machine must have a minimum of 12 steps if the machine has less than 12 steps the respective pool would be disqualified from the competition.
* Only one member from the team is supposed to explain their machine before the demonstration.
* The machine will have a 15 minute reset time if they go for more than one run.
* Only one team member may interact with the machine once the evaluation has begun. This includes resetting the machine during the run. This means that only one person will be inside the arena. However if the team goes for another run the restriction of one person inside the arena is uplifted until the machine is ready for the other run.
* Any loose or flying objects must remain within the set boundaries of the machine. This includes, but is not limited to, drops of water, slivers of balloon, and other “small” objects. Steam and other gases are exempt from this rule. However for the sole purpose of electrical connection wires can be outside the boundaries of the machine.
* Each team is supposed to submit a copy of a step-by-step description of their machine. Diagrams and pictures have to be included in this description along with the typed information. If any team fails to submit the copy of the abstract then they will automatically be disqualified from the event. Team is encouraged to submit a video of the running of machine along with the written copy of description. Bonus 5 points would be awarded for the same.
* A step in the machine should be considered a transfer in energy from one action to another action. Identical transfers of energy in secession should be considered one step. For e.g., a set of dominos falling into each other should be considered one step. While technically each single domino falling is a step, stating one hundred steps because of the dominos is repetitive and not in the spirit of Rube Goldberg.
* The task should be completed in not more than 4 min time.
* No hazardous materials or explosives may be used on or within the machine. No live animals are allowed in the machine.
* Every team will be given maximum two runs for the completion of the task and if in case a team is not able to complete the task in their first run and they can go for second run.
* For every human intervention the points will be deducted.
* Any destructive action against another machine is grounds for disqualification.
* Programmable Logic Controllers or any other electronic controller/devices may be used on the machines. The use of these devices must be in line with a step. Using these devices as a fail-safe for the machine is illegal and grounds for disqualification.
  + Let’s say a ball is supposed to fall onto a switch and turn on a motor which is run by the controller.
    - If the ball misses the switch, but the controller still starts the motor, the controller is not transferring energy from one step to the next step. It is acting as failsafe so the machine can finish and not in line with definition of a step.
    - If the ball hits the switch and the controller starts the motor as it should, the device is merely transferring the energy from one step to another, so this is line with the definition of a step.
  + If a controller/electronic device is used, each instance of its operation should be clearly stated in the step-by-step description submitted along with the written description.
    - Each instance should be considered one step, but please supply detailed information of how the step is being accomplished.

**POINTS DISTRIBUTION**

|  |  |
| --- | --- |
| Theme & Descriptions of each task involved | 5 points |
| Completion of Tasks | 10 points (task is complete) |
|  | 0 points (no attempt to complete the task was made) |
|  | 2-8 points ( task is partially completed ) |
| No of Steps | +1 point for each step after 12 steps ( MAX 10 points) |
| No of Parallel Steps | +3 point for each parallel step in the machine (MAX 10 points) (a step is considered to be parallel if it triggers chain  reactions in 2 or more different chains and they finally merge into a single chain of events) |
| Complexity & Innovation involved in steps | 10 points |
| Bonus Point for Video Submission | 5 points |

**PENALTIES**

* Run Length exceeded(-5 points/min)
* Human Intervention
  + First Intervention -2 points
  + Further interventions: -4 points each
* Objects leaving machine (-2 points each)
* Delay in submission: 1 point for each 5 minute of delay

**DEADLINES**

Submission of the detailed description of the machine along with the video:

10:00 AM 1st September

Submission of the key of the room:

10:00 AM 1st September

Note: Exceeding with the submission deadlines would call for a penalty of 1 point for each 5 minute of delay. Also if delayed by an hour team would be disqualified.

**JUDGING**:

The judging of the event will take place from 2:00 to 6:00 PM 1st September 2013.

**46. Gearloose**

*Team Event, Open-To-All*

*Points: 30*

**Mission Objective**

To design a vehicle/mechanical system which can descend a ramp and reach the end of pool (as shown in the arena). The bot must complete this series of tasks in the shortest possible time.

**PROBLEM STATEMENT**

The arena consists of an incline followed by bumps(3cm in height) on end of incline and a small water pool lying at its base. The bot/mechanism has to move down the incline cross breakers and land on water. Next, it must propel itself by means of some potential energy or acquired kinetic energy to reach the end of pool. Design and fabricate a vehicle which is capable of moving on incline as well as floating on water.

**It must be capable of performing two tasks-**

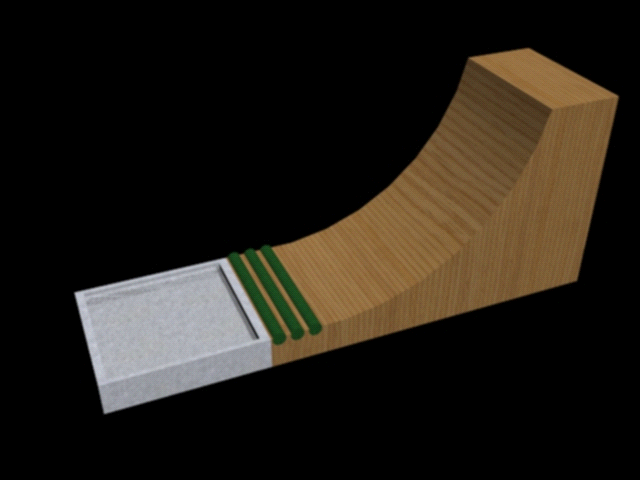
* Firstly it must smoothly descend the incline.
* Secondly it must self-propel itself on water to travel up to the end of water pool whose total length is 6’.
* All the tasks must be done in minimum possible time.

**RULES AND REGULATIONS**

* A team may consist of a maximum of 3 members from the same pool.
* Maximum dimension of the vehicle must not exceed 25x25x25 (in cm).
* The vehicle must have at least 2 wheels.
* A maximum of 100 points will be awarded to a team .
* Vehicle should not damage the arena in anyway otherwise it might lead to disqualification of the team.
* No part of vehicle must be left behind while landing on water.
* Vehicle's energy sources should be purely mechanical in nature. No electrical sources (motors, batteries, explosives etc.) can be used.
* Teams may use spring, pulley systems, rubber bands, plastic paddles, balloons or any other such things.
* The chassis of the vehicle can be made from cardboard, plastic boxes, thermocol, etc.

**JUDGING CRITERIA**

* There are 4 main tasks as mentioned in the problem statement. Point breakup is as given in scoring criteria.
  + Roll down the incline safely.
  + Cross 3 bumps.
  + Landing on water safely.
  + Reach the end of pool by propelling itself.
* 40 points will be awarded if vehicle moves stably on the incline. If vehicle falls no marks will be given.
* 20 points will be deducted for intervention on incline.
* 10 points are awarded if vehicle lands stably on water.
* 10 points will be awarded if vehicle floats on water.
* 20 points will be awarded if vehicle successfully crosses the breakers.
* 20 points will be awarded if vehicle successfully reaches the end point.
* Only one intervention is allowed in the rally, and it is allowed only when the vehicle completely stops in between the rally. 10 points will be deducted for each intervention in water.
* 5 points will be deducted for each delay in 5 seconds.
* All the teams shall be given only three trials to score maximum number of points. The best trial will be considered.
* **In case of any discrepancy, the judges and coordinators have the sole rights to take the final verdict.**



Sketch of the Arena

**47. Crypto**

*Pool Event, Open-To-All*

*Points: 20*

RULES:

The Treasure hunt starts on the 27th of August at 2000 hours.

1. This is an individual event.

2. Participants have to register ONLINE.

3. The competition will be open until the final question is cracked.

4. Clues, doubts, clarifications (if any) should be posted in forums and moderators will respond accordingly.

5. The participant to crack the last question first will be declared as the winner.

6. In case of leaking of answers between players or trying to answer by illegal methods, the participant will be banned or disqualified and the decision of the moderators in that case will be final and binding.

7. Rules and directions pertaining to specific sections will be provided alongside.

8. Any sort of attempt to contact moderators personally will lead to disqualification of the participant.

9. The answer can either be accepted in the text box provided or by changing the url.

10. Hints will be provided in the title of the page, page source etc.

11. In case of any conflict, remember that the moderators are always right.

**48. Eureka**

***Team Event, Open-To-All***

***Points: 20***

**General Rules**

* No student can be an author of more than one paper. Also, all the team members should be from the same pool.
* The research work done need not necessarily have been done as a part of a separate, standalone research program. All the work you have done as part of projects in courses, your summer research work, the B.Tech./M.Tech./B.E./B.Sc./M.Sc./PhD. research program are welcome, subject to the condition that it has in some way contributed towards research in any of the departments.
* Each team may have maximum three members.
* All results will be announced on the website.

**Round 1: Abstract Submission**

* An abstract of about 300 words has to be submitted focusing on the problem statement, scope of work, the idea proposed, original work done and brief results and findings.
* Word template for abstract is available on the next page. The word file should be named as “Team Name\_Pool Name\_Department\_Abstract”. Format should be strictly followed.
* Based on the total number of entries from each department, only five departments will be shortlisted for Round 2.
* All papers must be submitted electronically at eureka.takneek13@gmail.com with subject "**TeamName-Abstract Submission**".
* **Last date of submission** is **Aug 21, 2013 11:59 PM.**

**Round 2: Full Paper Submission**

* The teams shortlisted after round 1 will be required to submit the full paper of their research work.
* All papers must be submitted electronically at eureka.takneek13@gmail.com with subject "**Team Name-Full Paper Submission**". The word file should be named as “Team Name\_Pool Name\_Department\_Paper Title”.
* Papers will be judged on the basis of the following criteria:
* Clarity of Problem Definition 10 %
* Originality of the Idea & it's Significance 25 %
* Work/Study 20 %
* Innovation & Feasibility 30 %
* Conclusion & Overall Impact 15 %
* The decision of the judges would be final and binding.

**Last date of full paper submission** is **Aug 26, 2013 11:59 PM.**

**Important Dates:**

**Round I (Abstract)**

Aug 21 2013 Deadline for submission of Abstract

**Round II (Teams whose abstract is accepted in Round I)**

Aug 26 2013 Deadline for Submission of Full Paper

**Points Distribution**

* The first & second positions in each department will be awarded 2 & 1 point(s) respectively.
* No points will be awarded to the other entries in Round 2.
* The points for each pool will be totalled by adding all the points awarded to its entries in each department.
* Pool rankings will be declared on the basis of total number of points.

**49. Android AppDev**

***Pool Event, Open-To-All***

***Points: 30***

**Introduction:**

What is the utility of technology if it cannot help to solve day-to-day problems and make the world a better place to live? We believe web & mobile applications & technologies are an integral part of today’s society, it’s time to put them to better use!

Android AppDev aims to encourage development of web, mobile and telecom based android applications that can help to facilitate relief and rehabilitation camps in Uttarakhand.

**Problem Statement**

To develop a mobile, web or telecom based Android Application solutions for Uttarakhand.

The solution can be provided in many ways. Some of which are:

1. Immediate - Disaster management

Solutions to assist disaster management system implemented by Govt. & local NGOs.  
e.g. Person finder applications

2. Relief & Rehabilitation  
Solutions to assist relief & rehabilitation camps being carried out by Govt. & local NGOs.

e.g. Supply-chain applications to carry out efficient allocation of resources in disaster areas immediately.

3. Indirect - Increasing  public engagement  
Solutions to increase public engagement & hence public support in rebuilding Uttarakhand.  
e.g. Social media apps to share content

The applications may need not be limited to these only. Please visit <http://en.wikipedia.org/wiki/2013_North_India_floods> to get more information about the North Indian Floods.

Also, refer to attachments with this problem statement for updates and information about Uttarakhand to understand the situation & come up with ideas.

**General Rules**

* This is a pool event. Minimum of 1 entry is required from each pool to be eligible for final rankings.
* There is no restriction on the number of entries from each pool. People can come up with their own ideas and implementation which they think can help relief and rehabilitation. The best entry from each pool would be considered for judging, but all the entries will helpful for the social cause.
* **Minimum Eligibility Criteria:** A pool must score at least 50% marks in its best submission to be eligible for final rankings.
* **Independent developers not from any pools or Developers team comprising of members from different pools can also submit their entries. Their entries will not be judged but will surely help the relief and rehabilitation work.**

**Judging Criteria**

Usefulness 30 %

Implementation 50 %

User Interface 20 %

**Additional Info**

You can visit [http://rebuilduttarakhand.org](http://rebuilduttarakhand.org/)/  to know more about the project. Two attachments are provided with this problem statement to help you in developing your application. They are:

1. Uttarakhand Disaster & Relief Efforts – Timeline
2. Uttarakhand-List Of Problems

**50. The SnT Code**

***Pool Event, Open-To-All***

***Points: 70***

* The point breakup for this event is 70-35-21-14
* Would be held before Takneek from 9:00 PM, 24-08-13 to 6:00 AM, 25-08-13 @ OAT.
* The rules and regulations would be notified on the spot.

**Final Results**

**Individual Trophy Result**

|  |  |
| --- | --- |
| **Category** | **Winning Pool** |
| Aeromodelling | Mauryans |
| Astronomy | Mauryans |
| Business | Rajputs |
| Electronics | Mughals |
| Programming | Mughals |
| Robotics | Rajputs |
| Science | Rajputs |
| Hoverugby | Mauryans |
| WildSoccer | Rajputs |

**Final Pool Stand and Point Structure**

|  |  |  |
| --- | --- | --- |
| **Standing** | **Pool** | **Points** |
| First | Mughals | 770 |
| Second | Mauryans | 735 |
| Third | Rajputs | 726 |
| Fourth | Marathas | 303 |

**Event wise pool points and point structure**



**Approx Budget Used:-**

|  |  |  |
| --- | --- | --- |
| **Category** | **Details** | **Fund Spent** |
| Organizing | Posters and Flex | 27500 |
| Organizing | Trophy | 2600 |
| Component | For events | 35000 |
| Component | Arena | 3000 |
|  | Total | 68100 |

**Recommendations:-**

* **STF :-** Special Task force is to be formed for Takneek to look into matters which need immediate attention during festival .It will Consist of

1. President, Student’s Gymkhana
2. General Secretary, Science and Technology Council
3. 2-3 Reputed seniors of SnT Council
4. Any other member which Senate feels can be added
5. It’s not necessary that all members are present to call a meeting between STF members, Takneek Overall Coordinators and Pool Captain
6. If a decision is made by STF it can only be changed by GRC

* **Takneek Dates**: - If possible SPO should be made aware to not have any company interviews during Takneek.
* **Proper Checking of Arena**: - A committee **Arena Quality Check** to be formed by the Takneek Overall Coordinators for proper testing and quality control of all arenas.
* Minutes of every Pool captain meeting to be made and should be signed by Takneek Overall Coordinators and all Pool captain. If possible meetings should be video recorded also.
* A New form to be introduced **Undertaking of Rules** which will contain all the rules and regulation of the events and should be signed by all the participants before the starting of events (if participants are many then pool captain should sign) .If there is no participation from a pool still this form is valid. And if all participants have signed then the rule that if any change in rule is made it should be notified to pool captains stand invalid and issues with rules and regulation cannot be questioned in GRC and Senate.
* The rule “Any pool found guilty of outsourcing or taking professional help will be awarded zero points directly” should be changed to “Any pool found guilty of outsourcing or taking professional help will be awarded zero points directly .Where professional help would be defined by the Takneek Event Coordinators and it would be binding to all and no objection on this would be entertained”
* General Secretary, Science and Technology Council as mentioned would only be member of STF and will not play any role in management and logistic issues of Takneek.
* If any pool is found guilty in any pool event of activity like plagiarism should be given zero point in whole Takneek and strict action should be taken against that pool.
* There should be balance among Science and technological events which we tried this year and we were able to achieve.
* The No. of events should be reduced.
* There should not be any event which considers likes for the points or eligibility.
* Pool should be penalized if they are late by 5% of the total point of that event and no entry should be counted even after a second delay after deadline.